

HARAPPĀ 1946 :

THE DEFENCES AND CEMETERY R 37

By R. E. M. WHEELER

The earliest known civilization of India has been labelled vaguely the 'Indus Valley' civilization from its general distribution, but its more precise designation is the 'Harappā' civilization from the little town in the Montgomery district of the Punjab where its distinctive elements were first recognized a quarter of a century ago. Its discovery at once prolonged the story of civilization in India backwards into the third millennium B.C.; but its subsequent exploration both at Harappā and at Mohenjo-daro and Chanhū-daro in Sind, although revealing certain possible affinities with historic India, presented in the main a picture of detachment, of sudden and uniform efflorescence devoid alike of genesis and decay. Its life and death, its biography, could not yet be written. Brave attempts in recent years to find some hint of its ancestry in the scattered prehistoric cultures of Sind, Baluchistan and Iran have so far failed to produce any very significant result. It has remained essentially an abstraction.

The recent re-opening of the problem by a season's work at Harappā (already subjected to eleven years of intensive exploration in the twenties and thirties of the century) has not removed the anomaly but may be claimed to have reduced its proportions. We can now trace at Harappā certain elements of adolescence, maturity and decline. The apparently unwallled town or village, associated with an alien or variant ceramic industry, was followed by the arrival of the Harappan culture and the building of a citadel with imposing defences; after a considerable interval, these were reconditioned, at a time when the local craftsmanship was at its prime; later, the reconstructed fortifications were further reinforced and a gateway blocked by a city now presumably on the decline; and finally an intrusive culture occupied a part of the site above layers of débris. The sequence is one with historic parallels which enable us to fill in some of the human details, and helps materially to vitalize the 'abstraction'. If we may go further, as is tentatively proposed in the following paper, and, in the light of the new evidence, associate the fall of Harappā with the protohistoric advent of the Āryans, then the Harappā civilization at last becomes an integral episode in the story of the Indian peoples. But in the present state of knowledge no undue stress is laid upon that possibility.

Sociologically, too, the recent discoveries have something to tell us. The Harappā civilization was of a centralized type, comparable in kind with the contemporary civilizations of Sumer and Egypt. A hint of this had already been implicit in the superficial aspect of the civilization. Between the Arabian Sea and the foot of the Simla hills, a distance of a thousand miles, thirty-seven sites yielding 'Harappā' relics have been noted (fig. 1). Of these it would appear that only two are of outstanding size: Harappā itself and Mohenjo-daro, a little larger than Harappā, both cities standing in isolated grandeur on the Indus plain. The rest are relatively small mounds or tells, representing villages rather than towns. The imperial status of the two cities would appear to have been domestically unchallenged, whether, at a distance of nearly four hundred miles from each other, they represent two régimes or one. We now know that each of them was dominated by a massively fortified citadel, and must therefore have been subjected to autocratic or bureaucratic 'citadel-rule', its precise form at present unknown and unlikely to be known until perhaps some happy discovery unlocks the Harappā script.

The present excavations have also uncovered a further portion of the Harappan 'cemetery R 37' discovered in 1937, and have established its stratigraphical relationship with the intrusive

'cemetery H' previously recorded. Cemetery R 37 establishes the burial-rite (extended inhumation) of the mature Harappā civilization, and incidentally presents a further analogy with Sumer.

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1. INTRODUCTORY

HARAPPĀ, the type-site of the Indus Valley civilization of the third millennium B.C., was first visited by Charles Masson in or about 1826. It had long been a source of bricks for local buildings and subsequently provided brick-ballast for a hundred miles of the Lahore-Multān Railway. In and after 1853 Sir Alexander Cunningham visited the site and one of the seals now known to have been typical of the Harappā culture was recorded by him.¹ This with others in the British Museum roused the curiosity of Sir John Marshall, and at his initiative the excavation of the mounds was begun by Rai Bahadur Daya Ram Sahni in January, 1921, over a year before the initial exploration of Mohenjo-daro. Between 1926 and 1934, major excavations were carried out at Harappā by Mr. M. S. Vats, whose two volumes constitute the substantive work on the subject.²

The site, some 3½ miles in circuit, lies beside an old confluence of two branches of the river Ravi, a tributary of the Indus. The Ravi now flows six miles to the north

¹ *Archaeological Survey of India Report V, for 1872-3* (Calcutta 1875), 105-8.

² *Excavations at Harappā* (Manager of Publications, Delhi, 1940), 2 vols.

of the mounds, and these are relatively dry. But anciently it may be supposed that, in a climate appreciably damper than that of the present day,¹ the flat plain which surrounds the town was liable to occasional flooding, and that the formidable bund which is now known to have formed the basis of the fortifications of the principal mound may have been designed partially as a defence against this risk.

The extensive spoliation of Harappā in modern times has robbed its structural remains of the coherent plan which today makes Mohenjo-daro one of the most spectacular ancient cities of the world. Nevertheless, Harappā presents features which are either not available or so accessible at Mohenjo-daro, and two of these, the defences and the cemeteries, were partially explored by the Archaeological Survey of India in 1946. The work was carried out by the Excavations Branch of the Survey under my direction as Director General, with assistance from Mr. B. B. Lal (Assistant Superintendent in charge of the Branch), Mr. B. K. Thapar, Mr. H. K. Bose (Anthropological Assistant), and thirty students from the Indian universities. In the preparation of the report, special assistance has been given by Mr. A. Ghosh, Mr. B. B. Lal, Mr. Krishna Deva and Mr. S. C. Chandra. Grateful acknowledgment is also due to Mr. Ballabh Saran, surveyor, Mr. Raghbir Singh, draftsman, and Mr. S. G. Tewari, photographer.

2. THE DEFENCES

(a) GENERAL

Cunningham referred vaguely to 'the remains of the walled town of Harappā',² but it would appear from the context that the phrase is intended merely to distinguish the high mounds of the site from the vestiges of occupation on the lower ground round about. Masson had camped 'in front of the village and ruinous brick castle',³ the latter doubtless the small Moghul fort which now encloses the police-station on the eastern flank of the site. Burnes, about 1831, in referring to 'a ruined citadel on the river (i.e. northern) side of the town'⁴ was presumably referring to the high mound AB rather than to the Moghul fort and so perhaps anticipated a result of the recent excavations, but, like Cunningham, may be suspected of identifying his 'citadel' rather by the magnitude of the mound than by any coherent and obvious system of defence still surviving in his time. Certain it is that subsequent explorers both here and at Mohenjo-daro have failed to identify definite fortifications. At the latter place, indeed, Sir John Marshall tentatively assumed the former existence of town-walls,⁵ and E. J. H. Mackay had to suspend his excavations whilst in the act of examining a substantial structure which he was 'inclined to think was a part of the city wall', 100 yards to the north-east of the stūpa mound.⁶ This was in accordance with Marshall's forecast that 'it is clear that any fortifications it (Mohenjo-daro) may have then possessed would have stood, not on the rising ground in the heart of the city, but on the then level of the plain, which appears to have been some 25 to 30 feet below its present level'. These suppositions were reasonable enough and may yet be found to contain a part of the truth; but the apparent absence at Mohenjo-daro, a site where many

¹ For the climatic problems presented by the Indus Valley Civilization, see J. Marshall, *Mohenjo-daro and the Indus Civilization* (London, 1931), I, 2ff. Cf. M. S. Randhawa, 'Progressive desiccation of northern India in historical times', *Journ. Bombay Nat. Hist. Soc.*, XLV, No. 4, 1945, pp. 558ff.

² *Ancient Geography of India*, edited by S. M. Sastri (Calcutta, 1924), p. 242.

³ C. Masson, *Narrative of various Journeys in Balochistan, Afghanistan, etc.* (London, 1842), I, 452.

⁴ A. Burnes, *Travels into Bokhara* (London, 1834), III, 137.

⁵ *Op. cit.*, I, 9.

⁶ *Further Excavations at Mohenjo-daro* (Manager of Publications, Delhi, 1938), I, 4.

structures are in so remarkable a state of preservation, of any certain vestiges of what must have been the most extensive and substantial structure of them all had encouraged the logical conjecture that the Indus Valley civilization was politically and socially in advance of the king-ridden or priest-ridden societies of the West, and had precociously reached a phase of comparatively quiescent democracy, a 'bourgeoisie economy', devoid of what may conveniently be called 'citadel-rule'. The relative scarcity of military equipment supported this inference.

That in the outlands of the Indus area small towns or villages were occasionally fortified (possibly in some cases as police-posts) does not affect the main problem.¹ Village-fortification is a normal principle of self-help in the East and has no wider implication.

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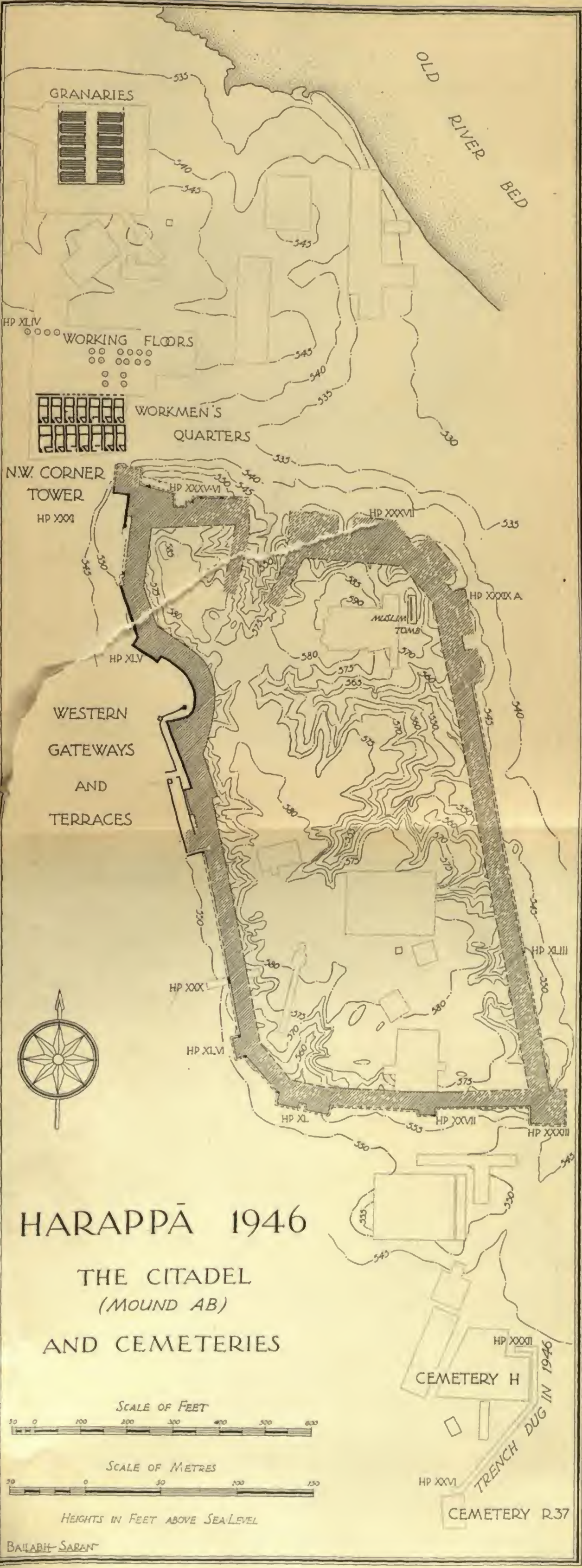
Reference to the general plans of Mohenjo-daro and Harappā (fig. 2) will show in both an inchoate mass of mounds towards the east and a detached, small and relatively compact mound towards the west. At both places, the detached mound is the highest and most imposing on the site; at both it is roughly a parallelogram in shape, with the major axis north and south; and at both it is approximately 400 yards from north to south by 200 yards from east to west. At Mohenjo-daro the detached mound is known as the 'stūpa mound'; at Harappā it is 'mound AB'. The remains of buildings unearthed on the latter are too fragmentary for reconstruction, but on the stūpa mound of Mohenjo-daro were found the most individual and notable buildings of the city: the celebrated bath-building, the 'collegiate building', the pillared hall, and perhaps the unknown building and platform under the Kushāna stūpa. This assemblage has no parallel elsewhere in the excavated town, and may be thought to indicate a centre of religious or administrative life on a significant scale. The almost identical size and orientation of the equivalent mound at Harappā suggested something more than pure coincidence, and the presence, immediately beside this mound, of serried lines of barracks or cooly-quarters, working-platforms and granaries (see below, p. 76) filled out a picture of centralized and disciplined citadel-rule which at least seemed to merit further investigation.

It was therefore no great surprise to me to find, on visiting Harappā for the first time in 1944, that mound AB, scarred and riven by three or four thousand monsoons, was still manifestly ringed by towering masses of mud-brick, the clean, pale masses of which emerged intermittently in sharp contrast to the reddened heaps of débris round about them (pl. XVI). In places, notably at the north-east and north-west corners, these mud-brick ruins rose to a height of 35-50 feet above the surrounding plain. On reference to the excavation-report I found that on the southern side of the mound a portion of this structure, nearly 40 feet wide with an external offset of 12-13 feet, had been planned as 'mud-brick infilling'² and allotted provisionally to Stratum V or VI from the top. It was an easy step to link up these vestiges and to identify them with the missing defences of the dominant portion of the site.³ The unlikelihood that mud-brick had been used exclusively for this exposed

¹ N. G. Majumdar, 'Explorations in Sind', *Memoirs of the Archaeological Survey of India*, No. 48 (Delhi, 1934), pp. 89, 133, 147, records two such sites with stone or stone-and-mud defences: Alī Murād and Kohtras, both in western Sind. The former is of the 'Harappā' culture, the latter perhaps of the slightly earlier 'Amri' culture. At Sutkagēn-dōr in Makrān, Sir Aurel Stein found an oblong brick fortification, perhaps 170 yards by 125 yards, with Harappā pottery.—'An Archaeological Tour in Gedrosia', *Mem. Arch. Survey of India*, No. 43 (Delhi, 1931), pp. 60 ff.; and *Archaeological Reconnaissances in North-Western India and South-Eastern Iran* (London, 1937), pp. 70-1, where the spelling of the name is corrected.

² Vats, I, 177 and II, pl. XXXV.

³ This identification was subsequently supported by Stuart Piggott, *Some Ancient Cities of India* (Oxford University Press, 1945), p. 15.





structure at a time when baked brick was otherwise almost universal here suggested the further likelihood of a former baked brick revetment.

A subsequent examination of the stūpa mound at Mohenjo-daro helped to confirm these inferences. The local conditions there have, however, differed considerably from those at Harappā. The remoteness of Mohenjo-daro has prevented the systematic brick-quarrying which has completely broken up the internal plan of the main Harappā mound; accordingly, as noted above, extensive and coherent remains of buildings have been revealed there by excavation. At the same time the resultant spoil-tips now obscure the outline of the mound and impede superficial observation. Furthermore, whilst the Harappā site is now relatively high and dry, that of Mohenjo-daro is liable to dangerous flooding from the Indus, a mile away, and only the construction of long stretches of embankment or bund has in recent years precariously restrained the annual flood. It is clear that the destruction of a considerable part of the stūpa mound, leaving re-entrants and hummocks with projecting brickwork, must be attributed to pre-bund flooding.

In spite of these difficulties, a cursory examination of the stūpa mound indicates quite clearly the presence of a continuous mud-brick periphery, except on the eastern side where the full impact of the Indus-floods has removed any possible evidence. At twenty-one points the mud-brick has recently been shown by scraping the surface, and at the south-eastern corner the angle of a tower or salient can be detected. These points are marked on the site-plan (fig. 2), and, although no baked brick revetment of the Harappā type has yet been proved (or disproved),¹ they demonstrate adequately, short of specific digging, the former presence of a mud-brick circuit-wall. In the northern end of the mound there is evidence, as at Harappā, of a marked re-entrant which presumably indicates the position of the main entrance; whilst towards the southern end of the western side a semicircular 'bite' is significantly like the re-entrant on the western side of Harappā. Finally, evidence of a considerable mud-brick platform, comparable with that now known to have existed at Harappā, was noted by the excavators in the northern end of the stūpa mound.

(b) SUMMARY OF RESULTS

The Harappā excavations of 1946 were of restricted extent, and, in so far as the problem of the fortifications was concerned, had two main objectives: first, to establish the existence or absence of a defensive system round mound AB, and, secondly, to ascertain the general relationship of such a system, if found, to the main stratification of the site. It may be said at once that, within these limits, the excavations were wholly successful in the positive sense. In summary, the results were as follows:—

- (1) After a preliminary occupation of the site or its vicinity, accompanied by extensive periodical flooding and associated with a variant or alien ceramic industry, mound AB was heavily fortified. In the area excavated, the fortification marks the arrival of the mature Harappā culture.
- (2) The plan of the defences falls roughly within the limits of a parallelogram, 400 yards by 200 yards, with a 'bite' out of the western side, and a western gate-system of complex plan, with terraces clearly designed for ceremonial purposes. A re-entrant on the northern side probably represents a further (perhaps the main) entrance.

¹ A vertical baked brick wall on the eastern side of the stūpa mound, known as 'wall A', is probably not a part of the defences. But nothing is known about it—not even its thickness. Marshall, *op. cit.*, I, 125.



A. *The Harappā citadel: the unexcavated north-east corner, showing the mud-brick nucleus of the defences*



B. *The citadel defences: north-west corner before excavation, showing mud-brickwork*



A. *The Harappā citadel: the north-west corner during excavation*



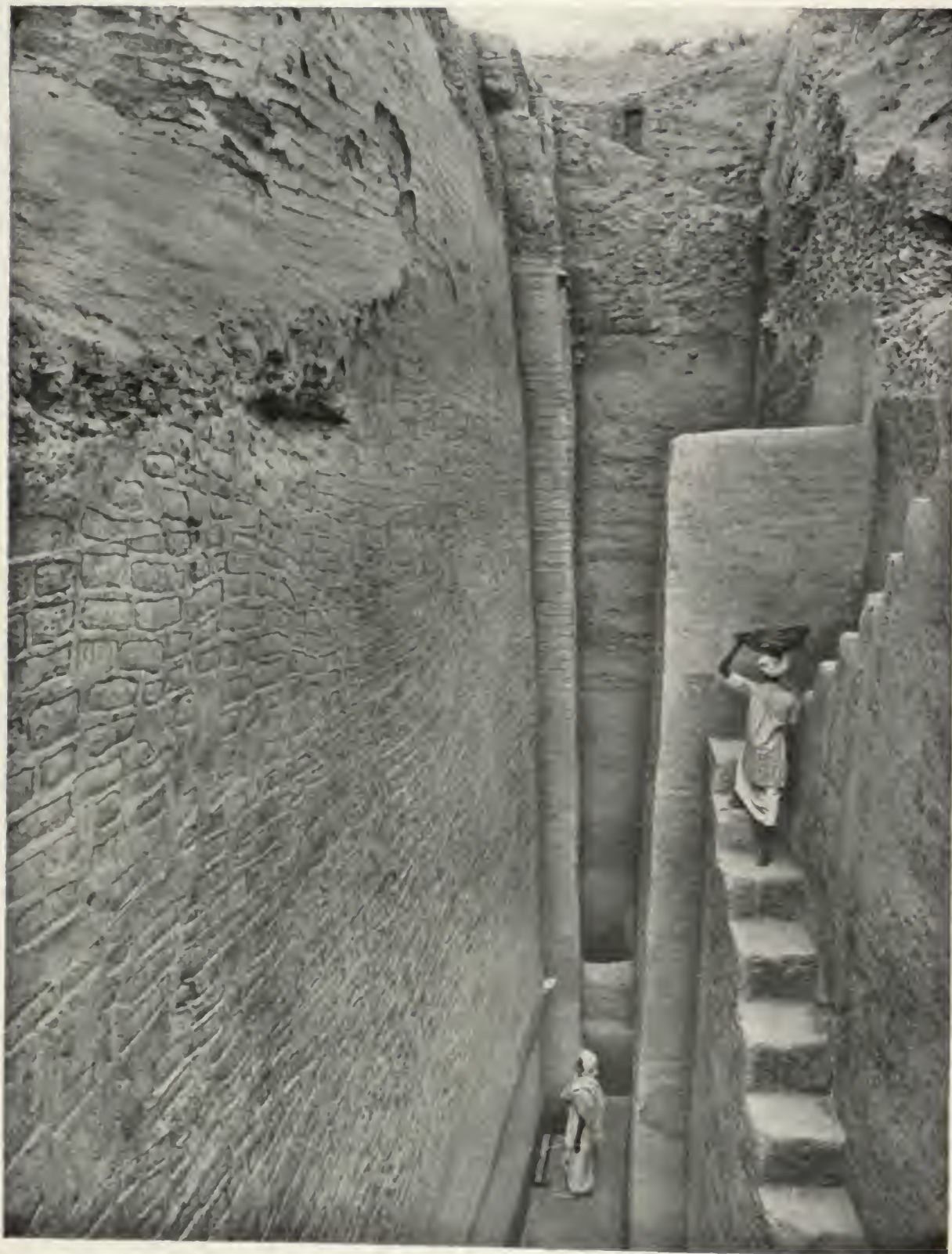
B. *View from the northern end of the citadel towards the working-platforms and the old river-bed*



A. *The citadel defences: site HP XXX before excavation, showing mud-brickwork*



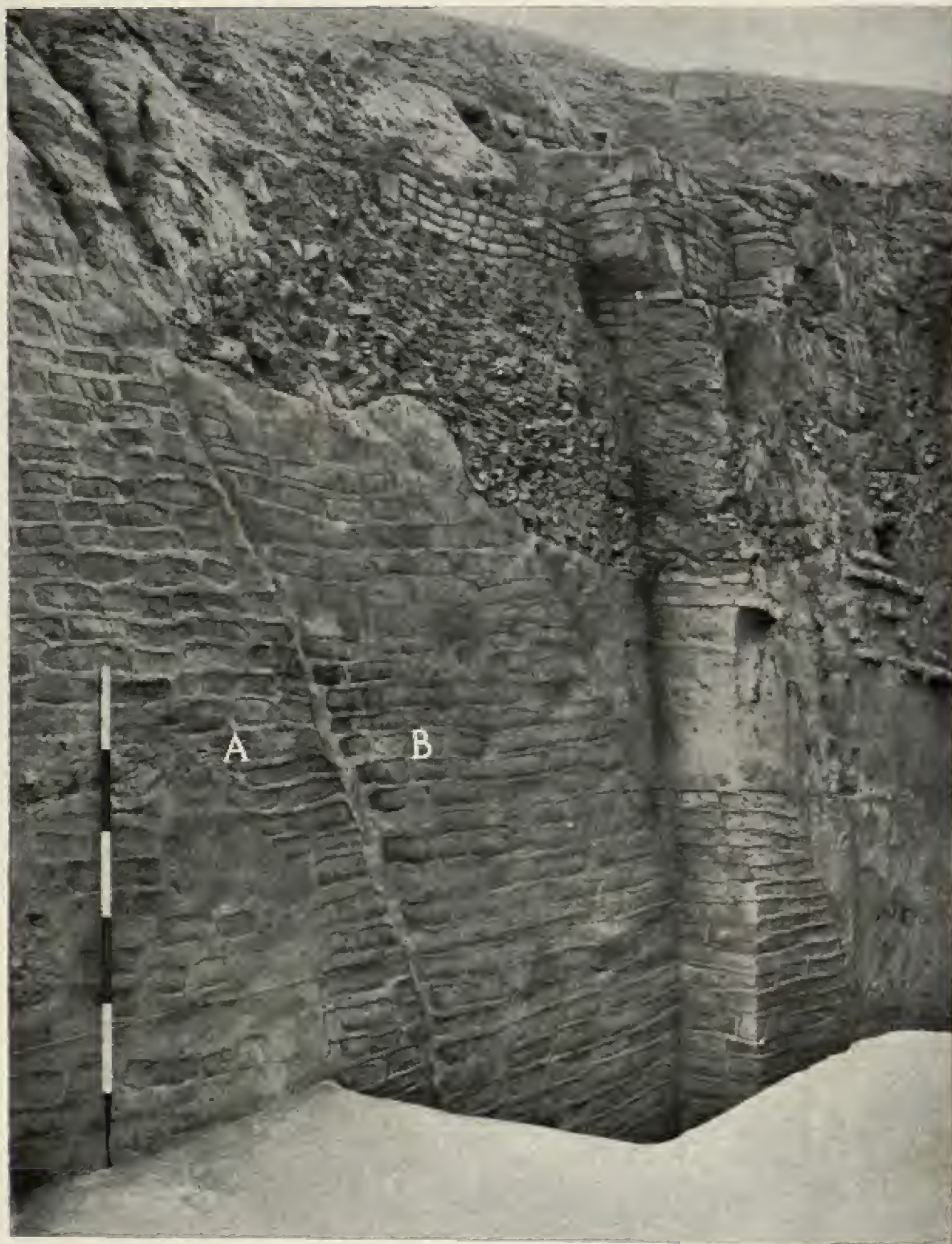
B. *Cutting HP XXX: face of mud-brick defensive wall, with fragment of baked brick revetment*



Cutting HP XXX from the west. The view shows part of a complete section through the defences of the Harappā citadel: the dark band at the feet of the lower figure is the natural soil; on the left is the mud-brick defensive wall (in section), and at the back (top) are the successive layers of occupation on the platform. Cf. pl. XXII.



Cutting HP XXX through the defences (during excavation): view from the west. The dark band by the lowest figures is the natural soil; the squatting figure near the top is beside the baked brick revetment of the mud-brick defensive wall, which appears on his right.



Cutting HP XXX through the defences (during excavation): A, back of mud-brick defensive wall; B, platform, capped by successive phases of occupation

- (3) The defensive wall overlies and is integral with a rampart or bund, 10-20 feet high, built up of mud and débris with a nucleus of mud-brick.¹ Its function was presumably to raise the base of the defences proper above flood-level. Extensive weathering in ancient times had so damaged the outer face of this rampart that its original contour was not obtainable in the only deep cutting, section HP XXX (pl. XXII); but at the western gate-system its outer shoulder was terraced, with retaining-walls of baked and unbaked brick.
- (4) On this bund stood the main wall, of mud-brick battered externally and internally, with a basal width of 40 feet and a height of upwards of 35 feet. Externally, the wall was revetted with a facing of baked brick, battered back to a slope of 23-31 degrees from the vertical.
- (5) The wall was reinforced by rectangular towers or salients representing an elaborate system of enfilade. The surviving masses of mud-brick core suggest that some at least of these salients were carried higher than the main wall.
- (6) Retained by the rampart and the lower part of the superimposed wall was a co-eval platform of mud and mud-brick rising to a height of 33 feet and designed to carry the internal buildings of the citadel.² The remains of these buildings in section XXX indicate six successive structural phases, a number agreeing with that noted previously elsewhere on mound AB by Mr. Vats.
- (7) The defences show three periods of construction. After a long period of weathering and other damage, the original baked brick revetment was rebuilt and, particularly at the north-west corner, considerably thickened. Unlike the older work, which was constructed largely of brickbats, the new work was built in first-class fashion, with complete bricks. This phase represents the apogee of the Harappā civilization. Subsequently, the north-west corner was strengthened by an additional salient and, significantly, two entrances of the western gate-system were wholly or partially blocked. In this late phase of the city, the Harappans were on the defensive.
- (8) Lastly, the site of the western terraces was occupied by roughly-built dwellings, constructed evidently at some distance of time above a layer of débris, and associated with the intrusive ceramic of 'Cemetery H'.

(c) THE CUTTINGS ACROSS THE DEFENCES

The cuttings made across the line of the defences will now be described in topographical sequence, beginning from the deep cutting, HP XXX, on the western side and proceeding

¹ Comparison may be made with the partly contemporary rampart upon which stood the town-wall of Ur. This rampart served as the base of the wall proper and as the revetment of a canal or river bank. C. L. Woolley in *Antiquaries Journal*, IX (1929), 336ff., and X (1930), 316ff.

² Compare the platform of Sialk VI (central Iran). This, however, is ascribed to the tenth or ninth century B.C., and it may be doubted whether the comparison is significant. See R. Ghirshman, *Fouilles de Sialk* (Paris, 1939), II, 23ff. Similarly at Turang Tepe in north-eastern Iran a revetted brick platform appears to exist on "mound A", ascribed vaguely to the Bronze Age; but the preliminary burrowings into the site did not produce definitive information. See F. R. Wulsin in *Supplement to the Bulletin of the American Institute for Persian Art and Archaeology*, II (New York, March 1932), 5-6. A small brick platform was also found, as Professor Piggott points out to me, at Nad-i-Ali in Afghan Sistān; but it is ascribed to a date even later than that of the Sialk platform and, like the latter, does not appear to be a significant analogy. See R. Ghirshman in *Revue des Arts Asiatiques*, XIII, No. 1 (Paris, 1939), 14 ff.

clockwise round the periphery of the mound. The West Gates and Terraces will be dealt with separately (p. 70).

Cutting HP XXX (pls. XVIII-XXII and XXV A)

This cutting presents a comprehensive picture of the character of the defensive wall and covers the whole range of the occupation at this point. It may fairly be described as a complete section of the Harappā civilization. It was 111 feet long and 12-18 feet wide, and was throughout cut down into the hard natural clay. Immediately over the latter were five layers, numbered 26-30, of which only the uppermost, No. 26, constituted an occupation-layer. It was of very considerable archaeological interest since its pottery was not of normal Harappā type and indicates a variant or even alien culture hereabouts prior to the arrival of the Harappans and the building of the defences (see below, p. 91). Beneath layer 26, layers 27, 29 and 30 were clean deposits of alluvial mud containing only a few sherds, mostly of pin-head size and in some cases in root-holes. Layer 28 was also alluvial, but was of a somewhat more earthy texture, suggesting that it may have been ploughed and sown; it was, however, similarly deficient in significant pottery. The most that can be said is that at the time of the deposition of these layers there was some slight occupation in the vicinity; but the deposits themselves were wholly or mainly the product of considerable inundations.

The defensive structure above them may be subdivided into four parts, all co-eval save for the possible rebuilding of (iii): (i) the substructure, here named the bund or 'rampart'; (ii) the mud-brick wall; (iii) the baked brick revetment; and (iv) the internal platform. To these may be added (v) the successive layers of occupation on the platform.

(i) *The 'rampart'*.—It was doubtless because of the periodical flooding that the first step in the construction of the defences was the erection of a substantial bund or rampart of mud and mud-brick to a height of 10 feet above the average level then obtaining. The layers of alluvium however did not present a uniform surface. At two points they had been cut by monsoon-channels, shown in the section; the more westerly of these had filled itself with in-washed mud, whilst the more easterly, lying under the front of the proposed superstructure, was now carefully filled with mud-brick, thus carrying the 'rampart' to a further depth of 12 feet at this point.

In the section, the 'rampart' had lost its outer contour through weathering. There is evidence at the West Gates that it had been terraced or retained by one or more walls, but whether in the present section the fragmentary mud-brick wall 'X', 14 feet in front of the face of the main mud-brick superstructure, represents a further terrace at this point cannot be determined.

(ii) *The mud-brick wall*.—At the back, superstructure and rampart were from the outset one and the same. In the early stages the back face was carried up vertically, layer 26A marking the accumulation of building-débris during this process. The increasing weight, however, of the sloping masses of mud-brick added by the builders progressively from back to front (as clearly shown in the section) distorted the vertical back, and, when the work had reached the height of 15 feet, a battered buttress was added here, its slope being thereafter continued upwards as the construction proceeded. The front face of the superstructure conformed, producing a mud-brick wall $39\frac{1}{2}$ feet wide on the level of its front base and tapering upwards, front and back, at angles of 13-20 degrees from the vertical. In the present section, the wall is preserved to a height of 20 feet above the front base and 30 feet above the back base.

(iii) *The revetment*.—The outer face of the mud-brick wall had been protected by a revetment of baked brick. This stood here to a height of $2\frac{1}{2}$ feet but elsewhere survived to a maximum height of $7\frac{1}{2}$ feet, tapering upwards (see fig. 3). Its outer face was battered

back to an angle of 23° . To judge from its character, the brickwork was at this point a re-build of the second of the three structural phases of the defences. (Pls. XVIII B and XXV A.)

(iv) *The platform*.—Behind the rampart, and of one build with it, was a platform of mud and mud-brick, which was carried up behind the lower part of the mud-brick wall. Its top was at a height of about 16 feet above the outer base of the wall. A low retaining wall (D on section), consisting of three courses of baked brick alternating with courses of mud-brick, was incorporated in the platform.

(v) *The occupation of the platform*.—As the digging was essentially vertical and not horizontal, no complete plans of the successive buildings on the platform were obtained. The walls represented stratigraphically six structural periods, with no signs, however, of any complete interruption between them. The periods are here labelled from bottom to top. The structural record of so small an area lacks intrinsic interest but it is of considerable importance to note that the pottery was substantially uniform 'Harappā' throughout.

Cuttings HP XXX F, E and G

These were small cuttings immediately north of HP XXX to ascertain the alignment of the outer face of the mud-brick wall. No other features of interest were revealed.

Cutting HP XLV (pl. XXVII A)

This cutting revealed a tower or salient covering an inward bend of the wall. The salient was 60 feet broad and, excluding revetments, projected 15 feet at its south-eastern end and 23 feet at its north-western end. Immediately north of the salient, the mud-brick wall was here 43 feet broad, but south-east of the salient it was of the exceptional width of 51 feet.

The baked brick revetment of the town-wall adjoining the south-eastern end of the salient survived to a height of thirty-two courses (vertically $7\frac{1}{2}$ feet) and was battered back to an angle of 31° (fig. 3). The south-eastern end of the salient showed two periods of baked brick revetment: (i) a facing 1 foot thick which impinged upon and was therefore structurally later than the revetment of the main wall; and (ii) a subsequent facing $2\frac{1}{4}$ feet thick. The earlier facing was badly weather-worn at the time of the additional work and had evidently been long exposed.

Cuttings HP XXXI and XXXV (pls. XXIII, XXIV, XXV B and XXVI)

These cuttings cover the complex plan of the north-western corner of the citadel. The archaeological problem was here a difficult one. Monsoon rains had driven a deep gully through the corner and had removed much of the mud-brickwork on the northern side. Builders in search of baked brick had almost completed the work of destruction. Finally, great quantities of rain-wash from the upper contours of the mound covered the site and had been reinforced by extensive spoil-tips from the previous excavations. Nevertheless, the main structural sequence of the complex was sufficiently clear to indicate that this corner, overlooking the storehouses and workshops between the citadel and the river (pl. XVII B), had been elaborately fortified and carefully maintained.

The north-west corner complex revealed two fragmentary structures of baked brick, which underlay the fortification in its present form. The south-western angle of the corner-tower overlapped a short length of wall $3\frac{1}{4}$ feet wide wall A on plan, pl. XXIV, and near it on the east was a fragmentary baked brick drain which penetrated for about 2 feet under the tower. Its relationship to the rampart hereabouts has not yet been elucidated; the remains are difficult of access but should be further explored. At the north-eastern

angle of the main corner-salient similarly overlapped a fragmentary and indeterminate structure (pl. XXV B), which likewise requires further examination.

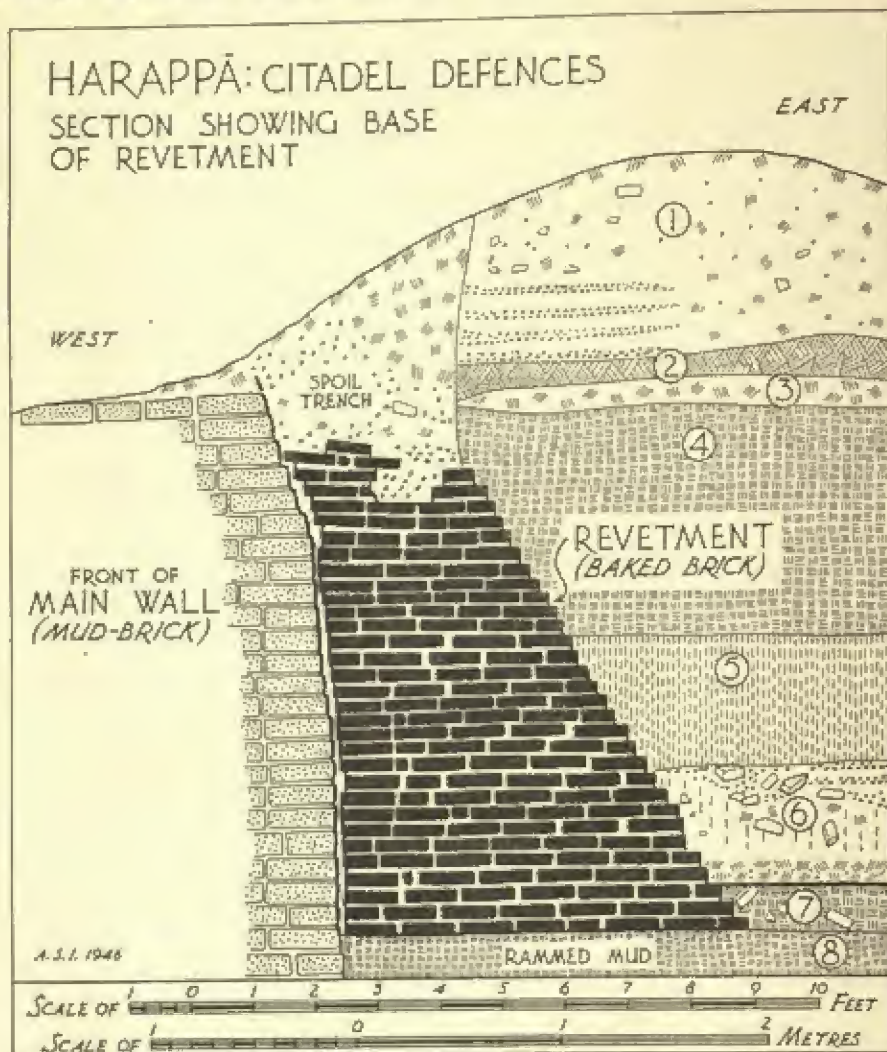


FIG. 3. Section of revetment of baked bricks in cutting HP XLV

The fortification itself falls into three clear principal periods, with sub-periods which could not be differentiated in detail on the fragmentary evidence available.

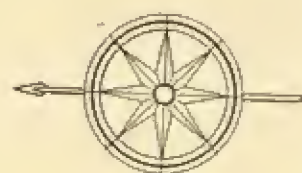
Period I.—The earliest lay-out, as traced, had included a broad salient clasping the corner and culminating in a boldly projecting corner-tower. The mud-brick of salient and tower had been faced with a baked brick revetment $1\frac{1}{2}$ feet thick and battered back at an angle of 27° . This revetment showed signs of extensive exposure and weathering, and at the south-western angle of the corner-tower had collapsed anciently and had been rebuilt in Period II. To the east of the corner the original revetment had disappeared.

Period II.—In this period, the weather-worn revetment of Period I was rebuilt, the new facing having an average width of 4 feet and an angle-of-batter of 26° . To the south the frontage of the former salient was now carried southwards in a continuous line, the former projection from the main mud-brickwall being here filled up with baked brick,

HARAPPĀ 1946

N.-W. CORNER TOWER OF CITADEL
(MOUND AB)

SHOWING BRICKWORK AS FOUND



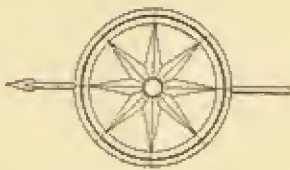
SCALE OF FEET 10 5 0 10 20 30 40 50

SCALE OF METRES 1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16



HARAPPĀ 1946

N.-W. CORNER TOWER OF CITADEL
(MOUND AB)

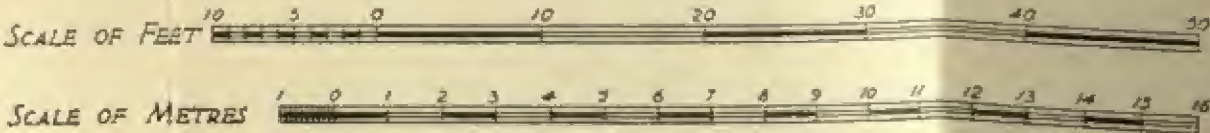


- PERIOD I
BAKED BRICK (solid black)
MUD BRICK (stippled)
- PERIOD II
BAKED BRICK (diagonal lines)
- PERIOD III
BAKED BRICK (cross-hatched)
MUD BRICK (dotted)

MUD BRICKS

MUD BRICKS

WALL A
UNDER DEFENCES



now fragmentary (pl. XXIV). On the northern side, to the east of the corner-tower, a somewhat similar reinforcement was indicated by surviving scraps of baked brickwork, including a short length of the new outer facing. The brick-filling at this period indicated a structural plan of some complexity and perhaps of more than one sub-period, but the evidence was incomplete.

Period III.—This period is represented by a new tower or salient of mud-brick with a baked brick revetment $3\frac{1}{2}$ feet wide, having a batter of the exceptional angle of 37° . It will be observed from the plan that this new structure is turned slightly towards the north-east, evidently for the purpose of increasing its command towards the corner. It was traced southwards for a distance of 68 feet, but its southern angle, now covered by high spoil-tips, was not reached. It must, however, have been less than 100 feet.

Cutting HP XXXVI

Cuttings HP XXXVI B, D, C, and A revealed a double projection totalling 20 feet from the face of the main wall. The face of this new salient is then continuous through HP XXXVI main and E-G. The only vestige of the baked brick revetment was in HP XXXVI E, where it was 2 feet wide.

Cuttings HP XXXVII, and XXXIX main and A

These three trenches were cut at the north-east corner, where the mud-brick core of the citadel-wall or of corner-towers today rises imposingly to a height of not less than 35 feet above the surrounding plain. The cuttings revealed mud-brick construction but no actual face, and it was inferred that the latter had been completely eroded leaving only the summit of the underlying rampart. Further search, however, is desirable.

Cuttings HP XLIII A and main, and XXXIII C, E and D

Five trenches were cut to determine the general line of the eastern defences, and disclosed a straight alignment. In HP XXXIII E was a fragment of the baked brick facing, insufficiently preserved to indicate dimensions.

Cuttings HP XXXIII A, F, main, I, J and G

These cuttings were designed to recover the outline of the south-eastern corner, but it was found that a large part of the structure had here been completely eroded on the eastern side. All that remained were the western side and south-western angle of a salient projecting 35 feet from the main face. No traces of the baked brick revetment were disclosed.

Cuttings HP XXXIII H, XLI A and main, and XXVII

From east to west, these trenches indicated the straight alignment of the outer face of the mud-brick wall, a particularly fine example of this being shown in HP XXVII. No traces of the baked brick revetment were found. In HP XXVII, the width of the mud-brick wall was ascertained to be 33 feet 7 inches at the level of the top of the internal platform. In the same cutting, 4 feet outside the mud-brick wall and parallel to it, a baked brick wall 2 feet 10 inches wide, presumably part of an independent extra-mural structure, had been built at a late period on an accumulation of upwards of 8 feet above the base of the former.

Cutting HP XXVII western extension

These cuttings constituted an amplification of the clearance carried out by Mr. M. S. Vats in the centre of the southern side of Mound AB and illustrated in his report by the southern part of his plan, op.cit., II, pl. XXXV. In that plan, and in op. cit., I, 177, he records here an 'infilling of mud bricks' which is now seen to represent a portion of the citadel-wall with a rectangular bastion $33\frac{1}{2}$ feet wide and projecting $12\frac{1}{2}$ –16 feet from the main wall (pl. XV). Remnants of a baked brick revetment adhered to the outer face of the bastion. Both in front of and behind the wall and bastion were remains of the underlying mud 'rampart'; and, so far as observation was feasible, all baked brick structures in this area were of subsequent date. Consistently with this, Mr. Vats noted that, at any rate in part, the 'infilling' descended to his Stratum VI, which was the earliest structural stratum identified (op. cit., I, 178). It may be recalled that in the present excavations six building-levels were likewise identified on the platform in section HP XXX.

Cuttings HP XL and XXXVIII

These cuttings at the south-western corner of the citadel revealed two towers or salients, one of which was 43 feet broad with a projection of $16\frac{1}{2}$ – $17\frac{1}{2}$ feet, while the details of the other had been destroyed by a monsoon-gully. Further exploration is required. In the western angle between the salient and the main wall were remains of the baked brick facing of the latter, and a single course of baked bricks outlined the side of the salient itself.

Cutting HP XLVI

Between the south-western corner and Cutting XXX was a central bastion or salient 53 feet broad and with a projection of 21– $25\frac{1}{2}$ feet. At this bastion the wall changed direction, and the intervening trenches verified its course. At both inner angles of the bastion were remains of the baked-brick revetment; that in the northern angle faced the main wall and was $2\frac{1}{4}$ feet wide, whilst that in the southern angle was a fragment of the facing of the bastion itself.

(d) THE WEST GATES AND TERRACES, AND BUILDINGS OF THE 'CEMETERY H' CULTURE

The discovery of the defences of the citadel naturally raised the problem of its gateways. At present the question can be answered only in fragmentary fashion. Cunningham observed 'flights of steps on both the eastern and western faces of the high mound to the north-west',¹ but his record is too vague for use, although steps would constitute an intelligible mode of approach to the high platform on which the buildings of the citadel are now known to have stood. In the northern end of the mound the vestiges of the mud-brick defensive wall turn inwards to a marked extent, as though to flank a long ramp or staircase, and the same feature is observable at Mohenjo-daro (above, p. 64). It may be that the large drain which runs eastward towards the defences from 'area I and II' of the old excavations on the Harappā mound passed out through a gate a little south of the centre of that side. But this is not a necessary inference; near the south-eastern corner of the Mohenjo-daro citadel a similar drain emerges through the mud-bricks of the citadel-wall at a point where no gate existed.

In this uncertainty a bid was made to discover and plan a gate on the western side of the Harappā citadel, at a point where a curved re-entrant in the line of the defences suggested

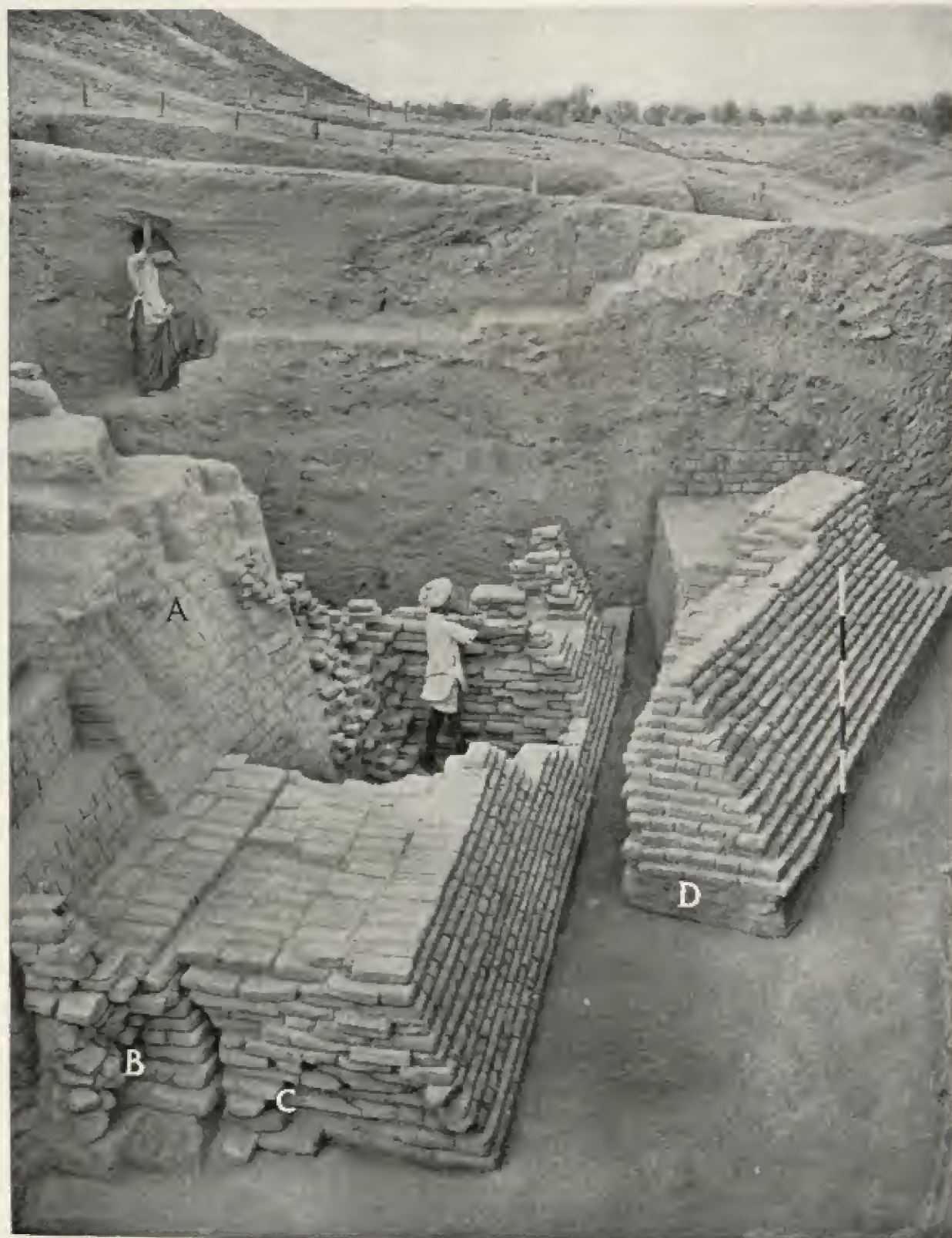
¹ *Archaeological Survey of India Report*, V (1872-3), 106.



A. Cutting HP XXX during excavation, from the west. In the foreground, the baked brick revetment of mud-brick defensive wall, the back of which is marked by the figure.



B. Cutting HP XXXV, north side of citadel, showing the mud-brick defensive wall overriding an earlier baked brick structure



The defences near the north-west corner of the citadel, showing : A, the mud-brick defensive wall ; B, C and D, successive phases of baked brick revetment



A. Cutting XLV, on west side of citadel, showing south angle of 'north salient' (plan, pl. XV): A, mud-brick defensive wall; B, baked brick revetment of A; C, Period I revetment of tower or salient; DD, Period II revetment of same



B. Cemetery H, Stratum I, burial II (sawn into halves for extraction of bones)
(Scale of inches)



Gateway C, inner side, showing walls of Period I, reconstruction of Period II, and blocking of Period III



A. Gateway B, from the west ; fragmentary baked brick revetment of the main defensive wall in background



B. Gateway B : A, wall of Period I guardroom ; B, wall of Period II guardroom ; C, Period II drain opening upon the gateway ; D, Period II steps ; E, Period III drain



B. Western terraces: 'fender' wall with drain, Period IA



A. The baked brick revetment of the main defensive wall outside Gateway C. Below, Period I; above, Period II; behind, mud-brick wall.



A. Western terraces : retaining walls of Periods I and II



B. Baked brick revetment of main defensive wall in the western 'processional way' (plan, pl. XXXIII) ; showing, below, weather-worn brickwork of Period I ; and, above, little-worn brickwork of Period II



A. A, main mud-brick defensive wall beside the western terraces;
 B, baked brick revetment of Period I; C, remains of baked brick
 revetment of Period II; D, wall of 'Cemetery H' period, over debris



B. Wall of 'Cemetery H' period built on debris overlying the
 Period I revetment of the main defensive wall adjoining
 the western terraces

the likelihood of an entrance. A gate was in fact discovered there, but, having said that, I pass from the anticipated to the unforeseen. (Pl. XXXIII.)

It should be premised that the internal platform, 15–20 feet high, of the citadel implies an approach in the form of a ramp or flight of steps from the outside level. But since the upper part and, in particular, the outer part of the mud-brick defensive wall has long vanished, this further implies that the whole or most of the main entrance has also disappeared. And what nature might have allowed to survive man has systematically destroyed. Relatively modern depredation had reduced the whole area to a shambles such as I have never before encountered on any ancient site—the ground had been ransacked for bricks almost from end to end and top to bottom. Nevertheless, patient and extensive excavation revealed the probable site of the main entrance—A on plan, pl. XXXIII—at a point where the mud-brick structure of the defensive system was interrupted by a rising passage between lateral walls of mixed mud-brick and baked brick. If, as appears likely, this was in fact the site of the main western gate, only the substructure of it remains. Between the flanking walls a filling of mud, with at one place a transverse mud-brick retaining wall, may be presumed to have carried the ramp or stair. At two points, fragments of baked brick walling are possible relics of the flanking superficial structures.

The remainder of the extensive structural approaches to the entrance is less in doubt. It is both complex and remarkable, and, in the absence of better-preserved analogies, may for the present be recorded rather than explained. In essence it consisted of a terrace or terraces fronting the main defensive wall and approached through two outer portals, B and C. The resulting structures fall into three principal periods to which may be added a fourth represented by irrelevant and fragmentary buildings superimposed on the ruined terraces by the 'Cemetery H' intruders.

Period I.—The plan of the main defensive wall hereabouts includes a tower or salient, the front of which was originally somewhat oblique to the main line, as is indicated by the inclination of a baked brick 'fender' wall which fronted it. This 'fender' was pierced near each end by a drain marking the approximate former limits of the salient. Between it and the structure of the salient was a contemporary filling of rammed mud.

In the first phase of this period (IA), the main entrance was approached directly from the exterior, without intervening terrace; the low level of the drains through the 'fender' wall is inconsistent with the co-eval existence of the latter feature. (Pl. XXX B.)

Later, but within the general limits of the same early period, the sloping foreground of the defences was terraced in two closely succeeding phases (IB and IC) to a height of more than 4 feet (see section, fig. 4), the terrace being retained by a wall of baked and unbaked brick at an average distance of 28 feet from the main wall (pl. XXXI A). The level of this terrace rises towards the south to a height of upwards of 8 feet in the vicinity of Entrance A, where it presumably debouched upon and was continued by the ramp or staircase of the gateway. The terrace was strengthened or subdivided in phase IB by an intermediate wall roughly built of baked bricks, and was subsequently subdivided in phase IC, at any rate in part, by a further baked brick wall, now fragmentary.

The terrace was approached by two outer portals, B and C, the former facing west and the latter facing north-east on to the re-entrant already referred to (p. 70). Entrance B at this period consisted of featureless parallel walls, now incomplete at the outer end (pl. XXIX A). Entrance C is of more interest (pl. XXVIII and fig. 5). Its eastern side is formed by the curving revetment of the main defensive wall, and its western by a massive pylon from which runs the outer revetment of an astonishingly long entrance-passage. The latter follows the line of the main wall, turning with it sharply towards the south and ultimately joining the passage from Entrance B. At the angle it is reinforced by a projecting

rectangular guardroom. Probable remains of a second guardroom are ill-preserved at the southern angle of Entrance B (pl. XXIX B).

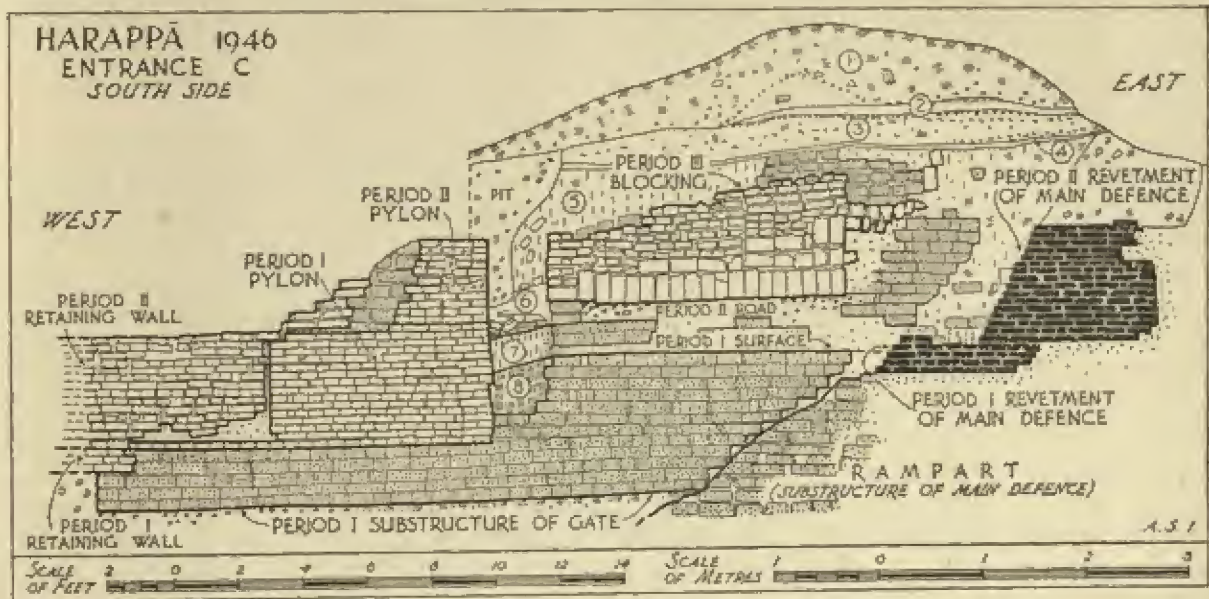


FIG. 5

Both the position of Entrance C and its long, approximately level passageway beneath the sheer wall of the defences are equally remarkable. A natural supposition, explaining both the gate and the re-entrant on to which it opens, would be the former presence of some important building close outside the defences here. A deep trench in the middle of the re-entrant, however, failed to reveal any structure except an insignificant oblong brick base of uncertain period beside the main wall (pl. XXXIII). A more convincing explanation therefore is that the re-entrant constituted an assembly-area, out of sight of the main terraces, to which the long passage from Entrance C formed a ceremonial approach (see below, p. 74).

Period II.—In this, the mature phase of the Harappan civilization,¹ the gates and terraces were rebuilt on a similar plan but in more substantial and elaborate fashion. It is evident that the walls of Period I had been long exposed (pl. XXXI B), and at Entrance B a burnt layer and burnt bricks suggest but do not prove a violent destruction. A conditioning factor of the work of this period is a general rise of the ground-level. The main defensive wall was almost entirely refaced with baked brick, the new foundations being up to 2 feet above the old. At the same time the terrace between Entrances A and B was re-walled front and back, the back wall being mostly of mud-brick but partly of baked brick, the latter including a drain. Further, the front of the tower or salient was trimmed

¹ It may be observed that, whilst the brickwork of Period I is inclined to be sketchy, with a predominant use of broken bricks, in Period II complete bricks are normal even for the core of a wall. See pl. XXVIII. In Period III there is a marked deterioration of the brickwork.

back to its present asymmetrical plan. Between the terraces, immediately south of Entrance B, a flight of steps with brick-on-edge treads was added shortly afterwards; two of the steps survive.

Entrance B was likewise rebuilt, largely on the old plan, but with the addition of two niches or wall-seats, respectively in the northern wall and the neighbouring passage from Entrance C. The new southern wall included a drain, and in the south-western angle was a guardroom to which access was obtained through an adjacent doorway of which the door-sockets and part of the worn sill of bricks set on edge remained.

Entrance C was similarly remodelled, both flanking walls being completely rebuilt at the higher level. The pylon of Period I was now in a semi-ruined condition, but its nucleus was adapted to the new work. The accumulation of road-surfaces is illustrated in fig. 6.

Period III.—In this period Entrance B was partially blocked by a screen-wall with a reduced entrance in the middle. Entrance C on the other hand was now entirely blocked by a barrier of baked and unbaked brick (pl. XXVIII). The brick-construction of this period is very much rougher than that of either of the two preceding periods. It is evident that Harappā was at this time on the decline and, it would appear, on the defensive.

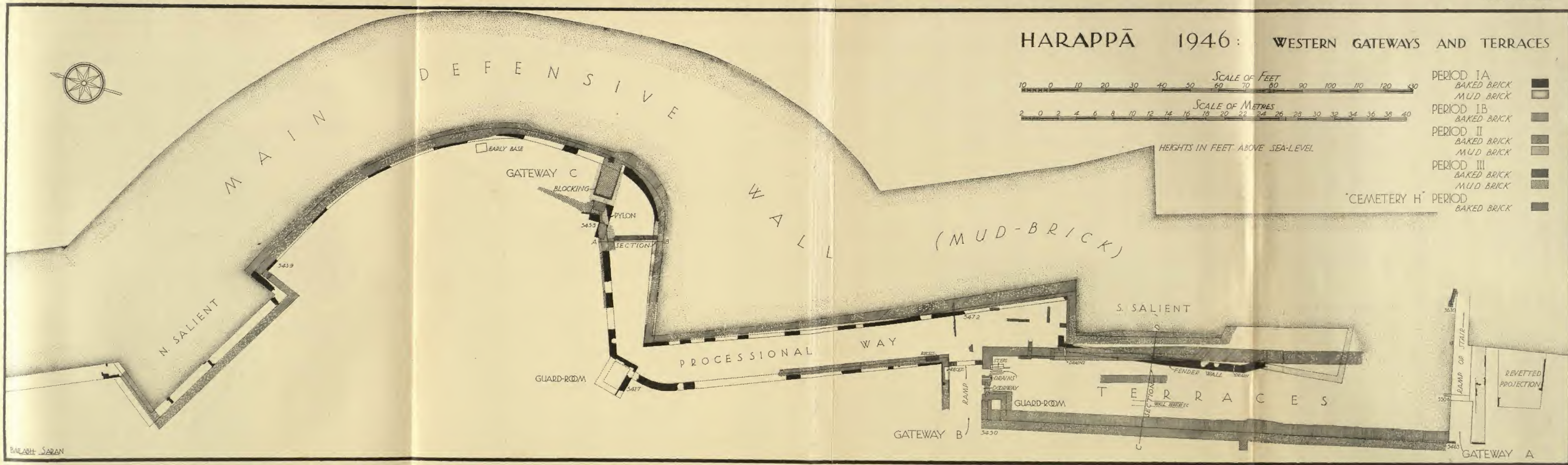
Period IV followed after an interval during which the structures relating to the terraces had fallen into decay and had been covered by débris (pl. XXXII). It is represented by fragments of poorly constructed buildings, presumably dwellings, with walls sometimes only one brick in thickness. The interest of these structures lies in the facts that they are associated with pottery of the 'Cemetery H' industry (p. 98) and that they clearly post-date the citadel as a disciplined and effective unit. Two drains, built on the surviving summit of the steps beside Entrance B, probably belong to this period.

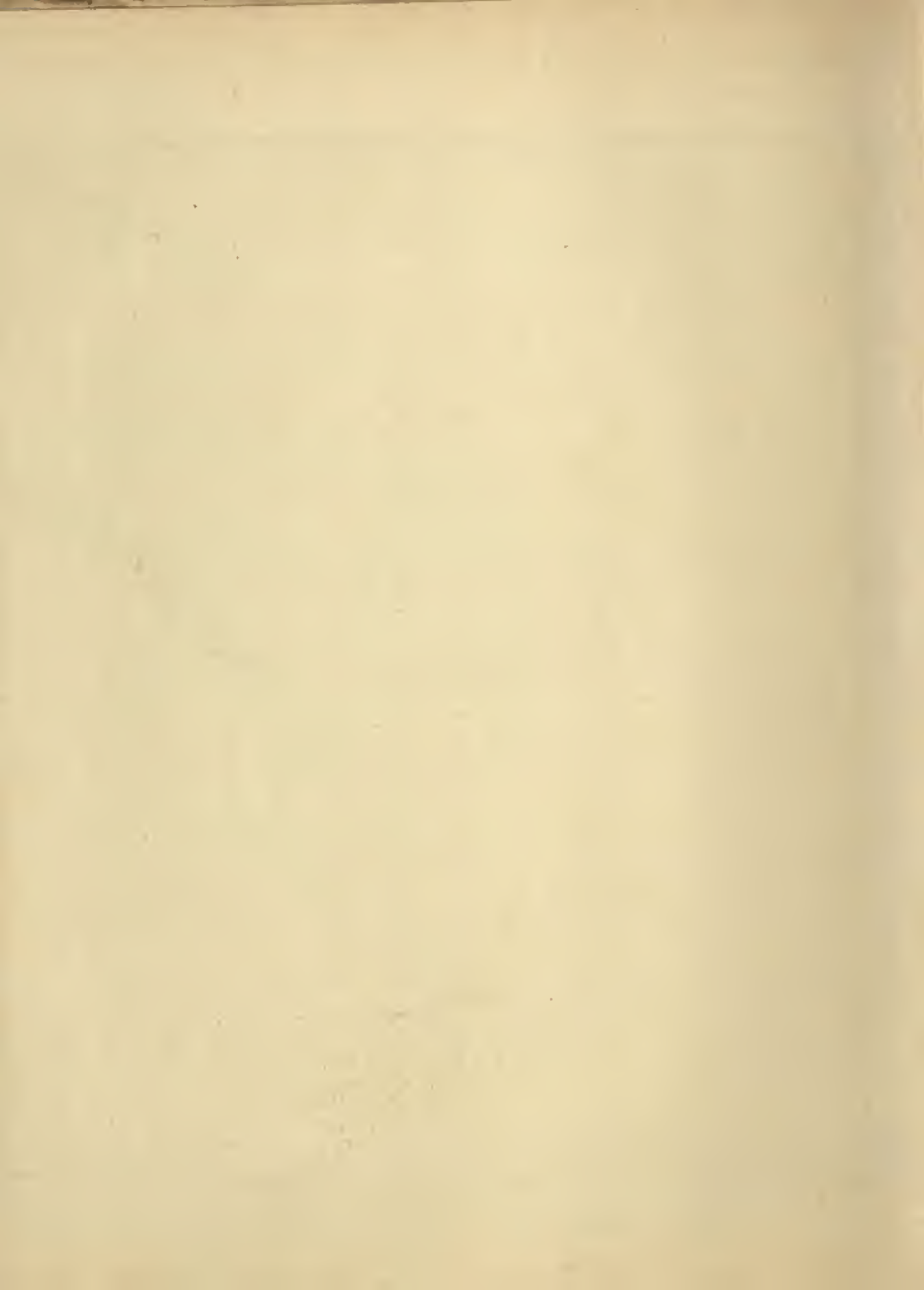
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If any inference from the plan of periods I–III may be ventured at present, it is this: the general lay-out, with its terraces and its remote northern outer gate opening upon the curious re-entrant in the citadel-wall, is not explained by the normal needs of defence. On the other hand, a deep trench in the centre of the re-entrant has failed to reveal any structure there to which the northern gate could supply private access, and, though the search has not been exhaustive, it is unlikely that any major building occupied the site. We are driven back upon the conclusion that the plan was designed to conform with the needs of some sort of ceremony—religious or secular or both—in which the terrace or terraces played a dominant rôle, and to which processional access was required. On the assumption that the terrace-frontage was the focus, a procession could well muster out of sight in the re-entrant round the corner of the defences, and could then proceed up the long and devious passage to the main scene. A variety of processional ceremonies to which the scheme could be adapted suggests itself, but choice is unprofitable until we have more knowledge of Harappan religion and administration.

3. SOCIOLOGICAL ASPECTS OF THE HARAPPĀ CIVILIZATION

Documentary and archaeological evidence has familiarized us with the general structure of society in Egypt and the Middle East during the third millennium B.C. Based economically upon the produce and traffic of great river-plains, the kingdoms or city-states of those regions had an essential affinity with the contemporary cities of the Indus system. It would be but natural to find that this similarity of supply and opportunity, combined with a roughly analogous equipment, produced in India a social organization not altogether unlike those of the contemporary West.





HARAPPÄ: WESTERN GATE-SYSTEM, SECTION ACROSS ROADS INSIDE ENTRANCE C (SECTION A-B ON PLAN)

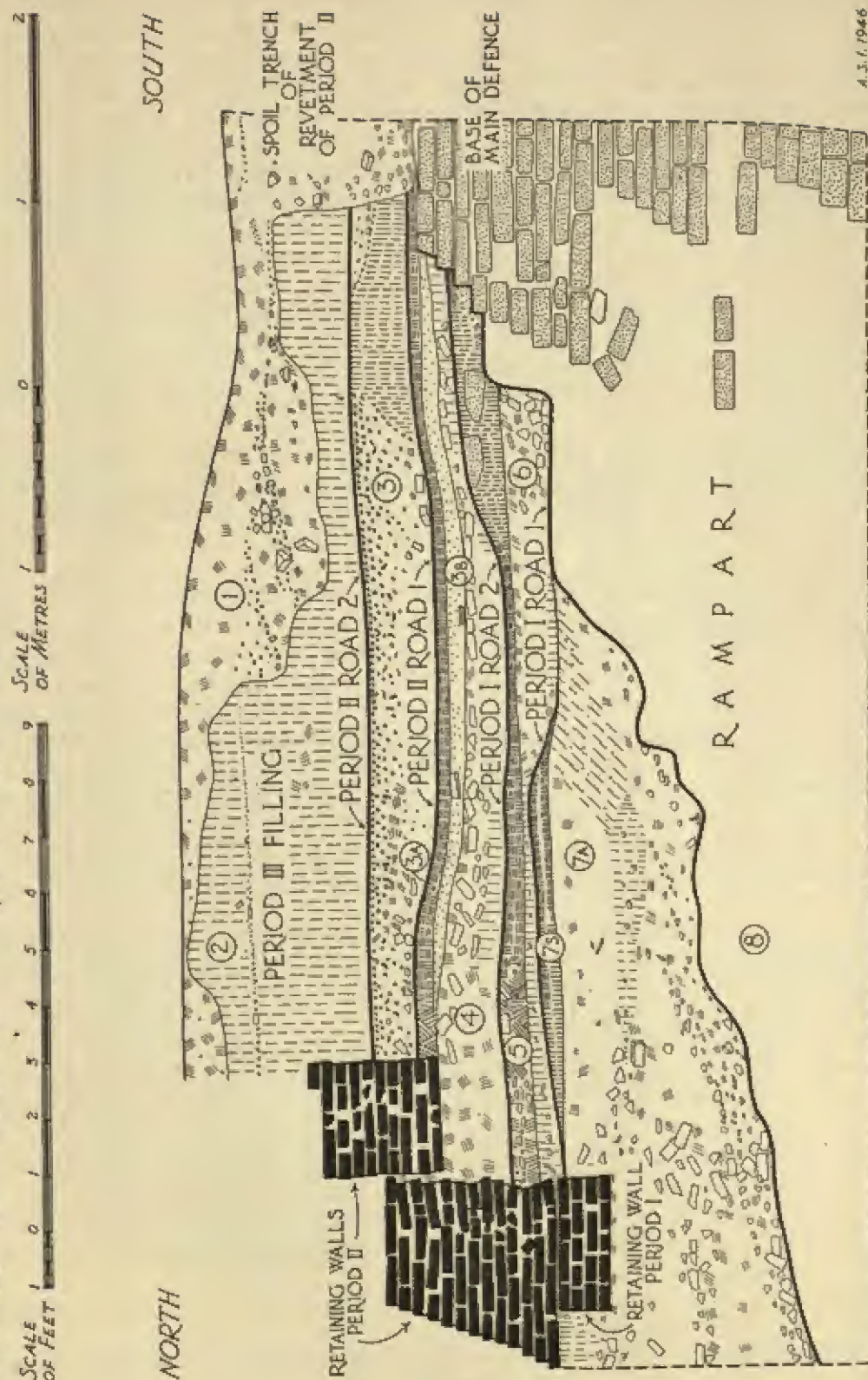


FIG. 6

And this, as we now begin to see more clearly than before, was actually the case. In Sumer, the wealth and discipline of the city-state were vested in the chief deity, i.e. in the priesthood or a priest-king. The civic focus was the exalted temple, centre of an elaborate and carefully ordered secular administration under divine sanction. About it were granaries and workshops, bakeries and breweries, manned by servile and semi-servile workers whose wage-lists or ration-lists are preserved to us. Thus in the temple of Baū at Lagash were twenty-one bakers with twenty-seven female slaves, twenty-five brewers with six slaves, female wool-preparers, spinners and weavers, a male smith and other artisans and officials. Similarly, a cloth-factory employing ninety-eight women and sixty-three children was situated within the enclosure of the temple of the Moon God Nannar at Ur, and came within the administration of the city and the temple. Such cities were massively fortified, and the enwalled temple-tower arose as a sort of acropolis or citadel in their midst, symbol and stronghold of undivided religious and secular authority. In essence, the picture is one of a rigid and highly-evolved bureaucratic machine, capable of organizing and distributing surplus wealth and of defending it, but little conducive to the political liberty of the individual.¹

To this picture Harappā, amplified by Mohenjo-daro, begins to assume a significantly similar outline. The relatively small detached mound AB, highest on the site, stands aloof and heavily fortified, its defences carefully maintained. If its buildings, now pitifully wrecked, possessed anything of the distinction of those on the closely equivalent mound at Mohenjo-daro (above, p. 62), it was marked by more than its defences. In its shadow, on the low ground between it and the former course of the river, lay blocks of barracks or cooly-quarters, serried lines of circular working-platforms, furnaces, and a notable series of store-houses, protected doubtless by a river-embankment or bund of which possible traces still exist.² The whole group (pl. XV) is marshalled like a military cantonment and bespeaks authority. The cooly-quarters are notable for their uniformity and, incidentally, for their oblique entrances, designed to secure privacy. The store-houses, with raised and ventilated floors, represent a type of granary familiar in many remote places and periods. They here stand in orderly array on a carefully-built podium with a battered retaining-wall of burnt brick, similar to that which revets the defences of the citadel. The intervening circular platforms, of which twenty have been exposed, are now shown (below, p. 78) to have framed wooden mortars in which grain was pounded with wooden pestles as in modern Kashmir.

It can no longer be doubted that, whatever the source of their authority—and a dominant religious element may fairly be assumed—the lords of Harappā administered their city in a fashion not remote from that of the priest-kings or governors of Sumer and Akkad. In other words, the social structure of Harappā conformed in principle with that of the other great riverine civilizations of the day. That was to be expected but has not hitherto been shown. And further evidence is probably not far to seek. The fragmentary Kushāṇa stūpa on the stūpa mound of Mohenjo-daro has long fulfilled its purpose and can tell us nothing new; time, if no other agency, will shortly complete its destruction, and the way will then be clear for the examination of the underlying platform and the dominant building which it is known to carry. At Harappā the careful transference of a few village forefathers from the summit of mound AB would release the equivalent area for excavation. So far, no temple of the Harappan civilization has been recognized; on these two spots,

¹ For a summary of the system, see V. Gordon Childe, *What happened in History* (London, 1942), pp. 82ff., and *Man makes himself* (London, 1936), pp. 173ff.

² Similarly at Mohenjo-daro the nearest branch of the Indus is flanked on the side of the city by the fragments of an ancient embankment formerly at least a mile long. The embankment incorporates 'Harappan' material.

the crowning heights of the two citadels, we may expect to find, if anywhere, the godhead or fixed centre round which, on the analogy of Sumer, the unchanging civilization of the Indus slowly revolved.

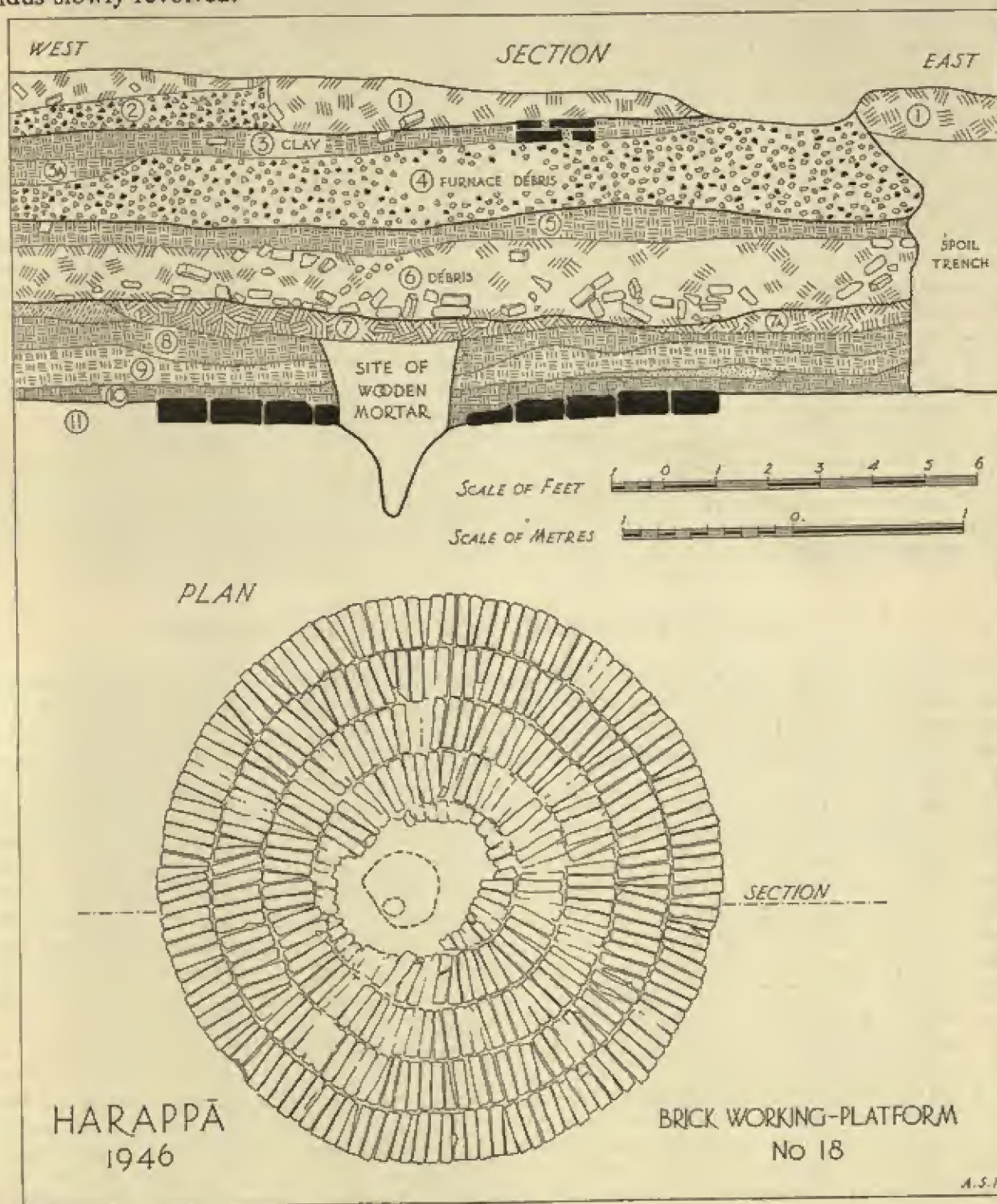


FIG. 7

Appendix A: The circular working-platforms of Harappā

In view of the uncertainty as to the use of the circular brick platforms situated between the 'cooly-quarters' and the granaries to the north of the citadel, and to the unfortunate fact that most of the nineteen previously discovered are fragmentary or have been rebuilt with modern bricks and so deprived of evidential value, an additional example was carefully uncovered in 1946. (See fig. 7 and pl. XXXIV.)

The newly excavated platform is circular in shape, with a diameter of 10 feet 9 inches to 11 feet. It consists of five concentric rings of burnt bricks set on edge, and is one brick in thickness. The ring nearest to the centre has been extremely worn and broken, that next to it somewhat less so, whilst the outermost ring is the least worn. The central void was carried down below the brick-course as a conical hollow to a depth of 2 feet 4 inches, and was continued upwards in section to a height of $1\frac{1}{2}$ feet by a cavity filled with loose earth in the make-up of an overlying floor. It was evident that a wooden object had been embedded in the socket and had projected above the brick-platform; and it may reasonably be inferred that a wooden mortar, hollowed in a section of a tree-trunk, occupied the centre of the platform. The fragmentary character of the innermost ring of bricks suggests that they may have been inserted in an incomplete state as wedges, or their damage may have been due in part to renewals of the wooden mortar. In the first and second rings from the centre—more clearly in the second—a group of two or three hollow-worn bricks alternates with a group of one or two relatively sound bricks, the former, it may be supposed, representing the place where the feet of the workman were normally planted. About the broken centre were found fragments of straw or husk.¹

It is inferred, therefore, that the platform surrounded a wooden mortar where grain was pounded by one or more workers with long pestles.

A similar pounding-system is in vogue at present in several parts of India; e.g. in Bengal and other eastern provinces, and in Kashmir. The mortar is either of wood or of stone; it is sometimes wedged on a pedestal and sometimes stands freely on the ground. The grain is usually pounded by two men (or women) using pestles about 5 feet long in alternation (pl. XXXV A). Wooden mortars used in the Punjab and elsewhere for pounding mustard-seed are fixed in the earth in similar fashion to that implied by the Harappā evidence, and the pestle is rotated by a circumambulating bullock.

4. HARAPPAN CHRONOLOGY AND THE RIGVEDA

The fixed point in the chronology of the Harappā culture is that, in a characteristic phase, it was in contact with Sumer in and about the time of Sargon of Agade (Akkad), now dated to c. 2350 B.C.² The evidence consists primarily, though by no means exclusively, of seven (or possibly eight) seals of Indian origin or type found at Ur (1 or 2), Kish (2), Tell Asmar (2), Tepe Gawra (1) and Susa (1) in associations certainly or probably of Sargonid date. Unfortunately no type-sequence of the seals of the Harappā civilization has yet been detected, and in any case four at least of the seven in question are of types which appear to occur at all the excavated levels of Mohenjo-daro. Of the other three, one from Tell Asmar is a cylinder which, though clearly of Indian workmanship, is not closely comparable with any of the three cylinder-seals found actually at Mohenjo-daro; and the fact that the latter were recovered respectively at 5·9 feet, 11·8 feet and 14·5 feet below datum means—if it means anything at all—that the cylinder was there almost equally long-lived. The square seals incised with concentric squares from Tell Asmar and Tepe

¹ Burnt wheat and husked barley were found in the central hollow of one of these platforms during the previous excavations (Vats, I, 74).

² The evidence of contact, based upon C. J. Gadd, 'Seals of ancient Indian style found at Ur', *Proc. Brit. Academy*, XVIII (1932), has recently been reviewed by S. Piggott in *Antiquity*, XVII (1943), 178ff., and in *Ancient India*, No. 1 (1946), p. 21. The shortened dating of Hammurabi (1792–1750 B.C.—Sidney Smith, *Alalakh and Chronology*) is vital to the argument which follows, and, in the deficiency of the necessary apparatus in India, I am indebted to Professor Gordon Childe for correspondence regarding the application of this dating to the earlier periods of Mesopotamian chronology.



A. Working-platform of baked brick, excavated in 1946



B. Baked brick working-platform during excavation, 1946, showing at A the socket of the former wooden mortar



A. Pounding rice in a wooden mortar near Srinagar, Kashmir



B. Early cart-track beneath Cemetery II

Gawra are comparable only with a rare Mohenjo-daro type of which little is known. In other words, the Akkadian 'fixed point' is a very mobile one in so far as the internal chronology of the Harappan civilization is concerned. Its significance is limited to the indication—an important one, so far as it goes—that in the period of Sargon the Harappans were in livelier contact with the West than at any other time.¹

There is indeed other seal-evidence which might be expected to bracket the Sargonid series and so add a little definition to the picture. Two Indo-Sumerian seals have been ascribed to the pre-Akkadian period, both from Ur. One, only vaguely Indian, is dated as pre-Akkadian by reason of the archaic cuneiform inscription which it bears; the other was found in the filling of a tomb-shaft ascribed by Woolley to the elusive Second Dynasty of Ur but by Frankfort to the Akkadian period.² Its nearest analogy³ was found at Mohenjo-daro at a depth of 14·8 feet below datum and presumably therefore occupies an intermediate position in the excavated series. But altogether the 'pre-Akkadian' evidence does not effectively extend our chronology backwards.

At the other end of the bracket, three Indian seals seem to occur in post-Akkadian contexts at Ur (2) and Lagash (1). A crude cylinder-seal from Ur was found in a Larsa tomb which may be dated to the beginning of the second millennium B.C. That the crudity of the workmanship is not in itself evidence of relative date is indicated by the apparently undifferentiated occurrence of good and bad seals at all excavated levels of Mohenjo-daro. The seal from Lagash is said to belong to the same period.⁴ Yet another from Ur occurred in 'upper rubbish, Kassite (?) level', which is not satisfactory stratification but may indicate a date as late as the sixteenth or fifteenth century B.C. Incidentally, the type is remarkable: it represents a man carrying a yoke wherefrom hang objects which have been interpreted as water-skins or pots. They are more probably fishing-nets, each containing a fish. A similar theme—a man between two nets with star-like objects in the background—is represented on a potsherd from Harappā.⁵

The seals as a whole, therefore, carry us from the eve of the Akkadian period to the beginning of the second millennium, with possible though doubtful intrusion into the middle of that millennium. How far is this indication amplified from other sources?

First, the copper pins. At Chanhudaro in Sind, Mackay found a double-spiral copper pin allegedly in the Harappā levels. But in spite of the distinctive character of this well-known type, it offers no present aid to our problem. A type which occurs on the one hand in Sialk IV (probably the latter part of the fourth millennium) and on the other hand in the *terramare* of Italy two thousand years later has no chronological significance in this context, until local values are determined independently. A single-spiral copper pin found at Mohenjo-daro at a depth of 18·4 feet below datum and therefore presumably derived from a fairly early phase of the occupation is also a widespread type to which it would be equally perilous to attach importance; and the occurrence of several roll-top pins of

¹ The evidence of the seals is reinforced by potsherds, etched beads and kidney-shaped inlays of bone, all of Harappan types, found in Akkadian houses at Tell Asmar. See *Oriental Institute of Chicago Communications*, No. 16 (1933), pp. 48ff. Gold and faience disc-beads with axial tube occur at Mohenjo-daro and Harappā (Marshall, II, 522-3; III, pl. CXLVI, 34, and pl. CXLIX, 7; Vats, II, pl. CXXXIII, 3), in Sumer in Early Dynastic III—Akkadian contexts, and, consistently, in Troy II. The gold examples from Mohenjo-daro were found at a depth of 6 feet with scrap-metal, which suggested a 'goldsmith's hoard of metal for melting'. It is uncertain, therefore, how old they were at the time of burial. For the type, see D. E. McCown, *The Comparative Stratigraphy of Early Iran* (Chicago, 1942), p. 53 and Table I; also V. Gordon Childe, *New Light on the Most Ancient East* (London, 1934), pp. 185, 195, 213.

² H. Frankfort, *Cylinder Seals* (London, 1939), p. 306.

⁴ *Revue d'Assyriologie*, XXVII, 177.

³ Mackay, II, pl. XCVI, No. 500.

⁵ Vats, II, pl. LXIX, 16.

Hissar IIIB forms in the Jhukar occupation which overlies the Harappā levels at Chanhū-daro has a derivative rather than a contributory interest. The pins in fact do not appreciably help.

Secondly, a copper axe-adze found 6 feet below the surface of Mohenjo-daro is paralleled in Early Minoan II, Troy II, and Hissar III, and lasted into the second millennium B.C. in Europe and perhaps the Caucasus. This therefore adds nothing to the seal-dating.

Thirdly, a more definitive discovery is that of an unpublished bronze or copper knife of distinctively curved Harappan type¹ found by Dr. Erich Schmidt at Hissar in stratum IIIB. The dating of Hissar III is under discussion; McCown's chronology equates Hissar IIIB with Early Dynastic II-III of Ur, but Piggott would make it overlap the Akkadian period.

Fourthly, there are a circular steatite pyxis or box (a fragment probably of the Mesopotamian 'hut' type) found at Mohenjo-daro by Mackay at the considerable depth of 28.1 feet below datum, 'in a very early stratum', and the two rectangular stone boxes found previously by Marshall at depths of only five and seven feet.² Similar vessels occur at Ur, Kish, Khafajah and Susa (McCown's D),³ and, nearer India, on the undated but perhaps late Harappan site of Mehī in southern Baluchistan and elsewhere.⁴ In Mesopotamia these boxes seem to be characteristic of Early Dynastic III, but in north-eastern Iran simple examples such as those from the higher levels of Mohenjo-daro occur in Shah Tepe IIA and Hissar IIIC,⁵ which are Early Dynastic III—Akkadian on McCown's chronology or late Akkadian (c. 2000 B.C.) on Piggott's. Indeed the deep-level 'hut' box from Mohenjo-daro is at present almost the *only* piece of definitive evidence from the Harappan civilization that need go back beyond Sargon.⁶

The more general relationships, direct or indirect, between the Harappan culture and the other Indo-Iranian cultures of the chalcolithic phase do not at present help appreciably to narrow or confirm the absolute dating of the former. They constitute an alluring and important study, and they are engaging the attention of an increasing number of very competent scholars. The first results show abundantly that in these comparative studies the time-factor must not be pressed too hard. The cultures in question were liable to an uncanny durability, particularly in phases or areas of economic equilibrium, and there is ample scope for differential development of a baffling kind from region to region. Mention has been made above of the wide extension of certain metal types in time no less than in space. In pottery a similar, though more surprising, persistence cannot be discounted. Marshall's first impression that there was 'but little difference in style and technique at the various levels' of Mohenjo-daro is modified but not contradicted by Mackay's later results. Mackay's plates show an apparent persistence of distinctive types and techniques (including even the elaborate polychrome decoration) from first to last, associated from time to time

¹ Cf. Vats, II, pl. CXXII, 6. I owe the information as to the Hissar example to the kindness of Dr. Donald McCown.

² Mackay, I, 321, and II, pl. CXLII, 45; Marshall, II, 369, and III pl. CXXXI, 37.

³ Mackay in *Antiquity*, VI (1932), 357; Henry Field, *ibid.*, VII (1933), 84.

⁴ Mehī has produced one rectangular and three circular examples in stone and two circular pottery-imitations, all in the Central Asian Antiquities Museum, New Delhi. For other sites, see Piggott in *Antiquity*, XVII (1943), 176.

⁵ See McCown, *The Comparative Stratigraphy of Ancient Iran*, fig. 17.

⁶ Dr. McCown (in conversation) is inclined to ascribe the oblique cruciform pattern on one of the shell-plaques of the gaming-board from the royal tomb PG 789 at Ur to Harappan influence, comparing the cruciform pattern on a silver ring from Mohenjo-daro. This comparison might add a second contact with Early Dynastic III. See C. L. Woolley, *Ur Excavations, Vol. II, The Royal Cemetery*, p. 277 and pl. 96; Marshall, *Mohenjo-daro, etc.*, II, 520, and III, pl. CXLVIII, 13, better illustrated by Mackay in *Antiquity*, V (1931), pl. facing p. 459, no. 5.

perhaps with other types of alien or relatively transitory character. These results need checking by more exact methods of excavation. Nevertheless in 1946 the careful digging of a small area on the platform of the Harappā citadel (section HP XXX), with this problem in mind, showed the undoubted continuance of the mature Harappā culture through the six successive building-phases of the site. True, the same excavation revealed a variant culture at a lower level, beneath the defences; but the six phases of substantial baked brick construction of the upper levels may be regarded as the product of several centuries, perhaps four or five in number.¹ On the same calculation, the ten occupation-levels of Mohenjo-daro might, so far as excavated, represent more than seven centuries of essentially uniform ceramic. And we must remember that at Mohenjo-daro the underlying natural surface has never been reached, whilst at Harappā the largest mound other than the citadel—Mound E—has not even been trenched. The duration of the Harappā culture in terms of building-construction may well be even greater than can at present be calculated.

But, by way of giving verisimilitude to this astonishing stagnation, certain elements of change are in fact identifiable, and others doubtless await discovery. Thus Mackay notes that, at Mohenjo-daro, hand-made ware 'is uncommon in the upper levels, but we have a good many examples from the lower levels'. A similar differentiation applies to the incised ware from the site. The remarkable glazed ware, of light grey fabric covered with a polished purplish slip which was then glazed and combed with straight or wavy lines, comes only from very early levels. These and other minutiae are at present too isolated to tempt further research. On the other hand at Harappā, apart from the seeming restriction of a class of small seals to the lower levels,² there are in fact two significant differentiae which are likely to develop in importance. The first of these is the occurrence, mentioned above, of a series of potsherds of non-Harappan type in a stratum heavily sealed by the citadel-defences (below, p. 91). Whether these sherds represent a proto-Harappan culture or, more probably, an alien village-culture such as that of Perišano-Ghūṇḍai is not certainly deducible from the relatively small amount of material available, but the problem is one which must be watched in future excavation. The second of the differentiae relates to the other end of the story; it is the Cemetery H industry (two phases but apparently inter-related), which is now seen to be superimposed upon the Harappā culture after the deposition of a considerable mass of intervening débris (pp. 74 and 85). The intrusive culture, as represented by its pottery, has in origin nothing to do with the Harappā culture; its ceramic differs from that of the latter both in finish and in decoration, and its dwellings, as identified for the first time in 1946 on the Western Terraces of the citadel, are notably more roughly constructed than those of Harappā proper. Its analogues have not yet been identified, and it appears in fact as abruptly as did its Harappan predecessor. The suggestion has indeed been made, very hesitantly, that the Cemetery H intruders 'may belong to the Āryan invaders',³ the conventional date for whose first incursion into India is the fifteenth century B.C. And here the risk which Indian archaeology is always ready to run in the search for a literary context lies once more across our path.

¹ The salt which today rapidly disintegrates baked brick on exposure both at Harappā and Mohenjo-daro would be considerably less abundant and noxious if the soil were regularly cultivated and the surface-water, which now evaporates through the desert-sand and drags up with it the deep-lying salt, were absorbed systematically by plant-life. There is no evidence that anciently the walls of these cities suffered materially from salt. It seems reasonable therefore to assume something like seven or eight decades as the lifetime of a Harappā building well-constructed of baked bricks. Mackay (I, 47-8) is wrong in his inferences from modern salt-action.

² Vats, I, 324.

³ Childe, *New Light on the Most Ancient East* (1934), p. 223.

Nor am I altogether disinclined to face that risk. The Āryan invasion of the Land of the Seven Rivers, the Punjab and its environs, constantly assumes the form of an onslaught upon the walled cities of the aborigines. For these cities the term used in the R̥gveda is *pur*, meaning a 'rampart', 'fort' or 'stronghold'. One is called 'broad' (*prithvī*) and 'wide' (*urvī*). Sometimes strongholds are referred to metaphorically as 'of metal' (*āyasī*).¹ 'Autumnal' (*śārādī*) forts are also named: 'this may refer to the forts in that season being occupied against Āryan attacks or against inundations caused by overflowing rivers'.² Forts 'with a hundred walls' (*śatabhuji*) are mentioned. The citadel may be made of stone (*āsmamayī*): alternatively, the use of mud-bricks is perhaps alluded to by the epithet *āmā* ('raw', 'unbaked').³ Indra, the Āryan war-god, is *purandara*, 'fort-destroyer'.⁴ He shatters 'ninety forts' for his Āryan protégé, Divodāsa.⁵ The same forts are doubtless referred to where in other hymns he demolishes variously ninety-nine and a hundred 'ancient castles' of the aboriginal leader Śambara.⁶ In brief, he 'rends forts as age consumes a garment'.⁷

Where are—or were—these citadels? It has in the past been supposed that they were mythical, or were 'merely places of refuge against attack, ramparts of hardened earth with palisades and a ditch'.⁸ The recent excavation of Harappā may be thought to have changed the picture. Here we have a highly evolved civilization of essentially non-Āryan type,⁹ now known to have employed massive fortifications, and known also to have dominated the river-system of north-western India at a time not distant from the likely period of the earlier Āryan invasions of that region. What destroyed this firmly-settled civilization? Climatic, economic, political deterioration may have weakened it, but its ultimate extinction is more likely to have been completed by deliberate and large-scale destruction. It may be no mere chance that at a late period of Mohenjo-daro men, women and children appear to have been massacred there.¹⁰ On circumstantial evidence, Indra stands accused.

The combined weight, such as it is, of these various indications suggests the millennium 2500–1500 B.C. as a possible inclusive date for the mature Harappā civilization, without prejudice to the still-unplumbed depths of Mohenjo-daro.¹¹ But in conclusion let it be squarely stated once more that the Akkadian contacts are the only well-fixed points. Material for objective dating in the post-Akkadian period is at present very slight. The relative abundance of Harappan objects on Akkadian sites may be taken to imply that, in and about the time of Sargon, Harappan enterprise—presumably commercial¹²—reached its apogee. This in turn may, in the normal order of things, be taken to imply bracketing phases of rise and decline, extending on the one hand into the Early Dynastic period and on the other hand into the second millennium. I have therefore invoked Indra; nevertheless, even Indra's hostile citadels may be represented, not by the Harappan sites, but by others yet unknown to us. If so, we have to assume that, in the short interval which can, at the

¹ The exact meaning of *ayas* in the R̥gveda is uncertain. If it does not merely imply 'metal' generically, it may refer rather to bronze than to iron. See A. A. Macdonell and A. B. Keith, *Vedic Index of Names and Subjects* (London, 1912), I, 31.

² *Ibid.*, I, 538.

³ I, cxxx, 7.

⁴ Macdonell and Keith, I, 356, 539.

⁵ See in particular Mackay, I, 94f., 116ff. and 172; and below, p. 84.

⁶ It must not, of course, be assumed that the unexplored lowest levels of Mohenjo-daro are necessarily 'Harappan', any more than is the lowest level at Harappā itself.

⁷ If so, the extreme rarity of Mesopotamian objects at Harappā and Mohenjo-daro implies that the trade was balanced in consumable goods. But what?

⁸ IV, xxx, 20; II, xxxv, 6.

⁹ II, xiv, 6; II, xix, 6; IV, xxvi, 3.

¹⁰ Marshall, I, 110ff.

¹¹ II, xx, 7; III, liv, 15.

¹² IV, xvi, 13.

most, have intervened between the end of Harappā and the first Āryan invasions, an unidentified but formidable civilization arose in the same region and presented an extensive fortified front to the invaders. The assumption is not an easy one, and seems to involve a wilful rejection of the massive fortifications with which the Harappans are now known to have girt themselves. Digging, and more digging, will ultimately solve the problem.

5. THE CEMETERIES

(a) BURIALS AT MOHENJO-DARO AND HARAPPĀ

In 1937 a cemetery—hereafter known as R 37—was accidentally located immediately to the north-west of the little museum at Harappā, and Mr. K. N. Sastri, the Custodian, subsequently uncovered about fifty burials here. These present the only systematic cemetery of the true Harappā culture at present known to us. Its full publication awaits the report on the skeletal remains.¹ Meanwhile, some account of its cultural characters, particularly of its pottery, can be given here in anticipation.

Mr. Sastri's work, supplemented by further excavation in 1946, shows that the Harappans buried their dead in an extended position, with the head usually in a northerly direction and with an abundant supply of pottery. A discovery of special interest in 1946 was that of a coffin-burial with traces of a reed-shroud—the only example yet identified in India of a type of burial familiar in Sumer in the third millennium B.C. (below, p. 88).

* * * * *

As an introduction to the preliminary report on the 1946 excavations, it will be convenient to tabulate the evidence of burial or mortality previously available from Harappā and Mohenjo-daro. Stray human bones and burials of doubtful period are mostly omitted. I also omit the so-called 'post-cremation burials' from both sites, since there is no evidence whatsoever that these have anything to do with human burial.²

A. Mohenjo-daro

(i) Skeletons of thirteen adult males and females and a child, some still wearing bracelets, rings and beads, were found in varied attitudes suggesting simultaneous death in Room 74 of House V, HR Area, Section B.

(ii) A group of six skeletons, including one child, were found in Lane 4 between Houses XVIII and XXXIII, VS Area.

(iii) A skeleton was found in Deadman Lane, HR Area, Section A.

All or most of these skeletons (i)–(iii) belong to a late period of the site. Their significance has been disputed: at any rate, they do not represent methodical burial.³

(iv) A group of nine skeletons, including five children, was found 'in strangely contorted attitudes and crowded together' in Block 10A, DK Area, in a pit with two elephant-tusks.

¹ When the Anthropological Survey of India has prepared its analysis of the skeletal material, a full report on Cemetery R 37 will, it is intended, be published as a Memoir of the Archaeological Survey.

² These curiously-named 'burials' consist of large vessels containing 'smaller vases, bones of small quadrupeds, birds or fish, and frequently a variety of other small objects such as beads, bangles, terracotta figurines and chert flakes, sometimes mingled with ashes and charcoal. The urns in question are found at both sites in buildings of all periods But it is only rarely that human bones are found in this class of urns. Indeed, out of 126 urns of this class at Harappā, only one contained a human bone, and that showed no signs of burning.' Marshall, *op. cit.*, I, 86ff.

³ Marshall, I, 79ff.

Mackay was inclined to ascribe them to a late period of the site, and suggested that they were 'the remains of a family who tried to escape from the city with their belongings at the time of a raid but were stopped and slaughtered by the raiders. One or more of the family may have been ivory-workers, and only the tusks for which the raiders had no use were not taken as loot'.¹

(v) In the last phase of the city, the stair of a well-room in Block 8A, DK Area, G Section, 'was the scene of a tragedy which involved four deaths. On the stairs were found the skeletons of two persons, evidently lying where they died in a vain endeavour with their last remaining strength to climb the stairs to the street'. One of them was probably a woman. It appears that the 'second victim fell over backwards just prior to death'. Remains of a third and a fourth body were found close outside. 'There seems no doubt that these four people were murdered It can be regarded as almost certain that these skeletal remains date from the latter end of the occupation of Mohenjo-daro and are not later intrusions. The facts that some of the bones of one of these skeletons rested on the brick pavement of the well-room and that the skull of another lay on the floor of the sediment-pit prove beyond doubt that both well-room and pit were in actual use when the tragedy took place.'²

B. *Harappā*

(vi) On the south-eastern outskirts of the site as now visible, in Area G, a tightly packed mass of human skulls (twenty complete and fragments of others), intermixed with a relatively small number of human long bones, some animal bones, and pottery of Harappā types, was found between 4 feet and 5 feet 10 inches below the present surface. The collection had obviously been brought together after the previous exposure of the bodies, but in what circumstances cannot be conjectured.³

(vii) Two fragmentary human skulls with other human bones, thought to represent a 'fractional' burial, were found in a house of 'Stratum IV' on Mound AB.⁴ This, if a deliberate burial, is the only one at present known from the higher mounds. The skulls may, however, be relatively modern, and it is best to follow Dr. B. S. Guha, who has examined them, in discounting the find.

(viii) 'Cemetery H', to the south of Mounds AB and J, comprises two strata. Stratum II, the lower and older, consisted of extended burials, sometimes with the knees slightly bent, at an average depth of 6 feet from the present surface. The general orientation was from east to west or north-east to south-west. The accompanying pottery was distinctive, showing no significant affinity with that of the Harappā culture proper.⁵ Some of the burials were regarded as 'fractional', i.e. incomplete collections of bones assembled after the exposure of the body. It is not clear from the account, however, whether these were true fractional burials or whether they were merely fragmentary burials, disturbed by later interments or other agencies. Pottery similar to that of these burials is found on the surface and with the latest occupation of Mound AB, and occasionally in the great rubbish-layer to the south of the cemetery (see below, p. 85). Stratum I, overlying Stratum II and extending beyond it towards the east, lay within 2 or 3 feet of the surface. It consisted of true fractional burials, the skull and a few long bones being enclosed in large vessels with openings just large enough to take the separate bones after excarnation. Only babies were enclosed complete, in the 'embryonic' position. The openings of the urns were closed by lids or by complete or fragmentary pots. The decoration of the burial-urns

¹ Mackay, I, 117.

⁴ Ibid., I, 161.

² Mackay, I, 94f.

⁵ Ibid., I, 220ff.

³ Vats, I, 197ff.



A. Trench dug in 1946 to connect stratigraphically Cemetery H (foreground) with Cemetery R 37 (background)



B. Cemetery R 37, burials 1 and 2 (1946)



A. Cemetery R 37, burial 5 (1946)



B. Cemetery R 37, burial 10 (1946)



A. Cemetery R 37: foreground, burial 5; background, part of mud-brick filling of burial 10 (1946)



B. Cemetery H, Stratum I: burials 11 and 12 (1946)

was again distinctive, including human figures, animals and birds in obviously ceremonial or mythological contexts,¹ and quite unlike anything in the true Harappā culture. Fragments of this pottery are also occasionally found on the surface of the mounds.

(b) CEMETERY R 37 AT HARAPPĀ

The dual task of 1946 was (a) to uncover a limited number of additional Harappā burials of R 37 under closely observed conditions, and (b) to link up the Harappan Cemetery R 37 with Cemetery H, 120 yards to the north-east of it, by means of a long trench (pl. XXXVI A) and so to establish, if possible, the stratigraphical relationship between them. Both aims were achieved. Clear stratification showed that Stratum I of Cemetery H was not only later than R 37 but was subsequent to a deep intervening deposit of potsherds and other débris which indicated a considerable alteration of the site between the two cultures (pl. XXXIX). Stratum II of Cemetery H was not re-identified, but report and observation combine to show that it also was stratigraphically later than R 37.

An incidental discovery of interest was that of a prehistoric cart-track close above the natural alluvial clay beneath Cemetery H, at a depth of 13 feet below the present surface (pls. XXXV B and XXXIX). The track, running nearly east and west, is 13 feet wide over all and shows six ruts. The distance between each pair of corresponding ruts is 3 feet 6 inches to 3 feet 7 inches. This figure tallies with the gauge of modern Sindhi carts, which are similar in general character to the models from Mohenjo-daro² and Harappā³ found in previous excavations. The track belongs to a very early phase of the site.

In detail, the evidence of the long exploratory trench joining cemeteries R 37 and H was as follows (pl. XXXIX). At the R 37 end, the natural soil was overlaid by two successive earthen deposits containing scattered sherds but no other evidence of occupation. One grave (No. 8), not yet explored, was cut into the lower of the two deposits. The other nine graves identified in 1946 were all cut into the upper deposit, but within it grave 4 overlaps grave 9. The deposit containing the graves slopes downwards towards the north and east to form a large sunken area which was gradually levelled by the subsequent deposits. The first of these, 1-2½ feet thick, covers the grave-layer and underlies a dense mass of potsherds and other débris, ranging up to 7½ feet in height and constituting the main filling of the sunken area. Towards the northern part of the trench, this infilling is covered by a further 2 feet of débris mixed with clay; and in this further layer were found two pot-burials of Cemetery H I type. A third burial of the same type was found in the next higher layer, above which two strata (2 feet in total depth) bring the section to the modern surface.

The section as a whole indicates that the Harappā Cemetery R 37 occupied slightly rising ground well to the south of the main habitation-areas. Between the latter and the cemetery lay a hollow of considerable but uncertain extent which, sometime subsequent to the disuse of Cemetery R 37, was deliberately levelled with débris largely consisting of a compact mass of potsherds. Thereafter, a further deposit of levelling-material was introduced before Cemetery H I came into being in the area explored. Although no burial of the adjacent (earlier) Cemetery H II was found in 1946, the section considered in relation to the depth as recorded and as recalled by Mr. Sastri indicates that this cemetery was within the range of the infilling and was therefore likewise later than R 37.

In the 1937-41 excavations forty-seven graves of R 37 were found, and in 1946 a further ten graves were identified. Of the latter, four yielded complete skeletons, four

¹ Vats, I, 206ff.

² Marshall, II, 554; III, pl. CLIV, 10.

³ Vats, I, 451; II, pl. CXX, 1-3.

had been disturbed, and two were not completely uncovered. In a total of eighteen instances, earlier burials had been cut by later graves, and in eight instances the latter had again been cut by tertiary burials. Nevertheless, the cemetery belongs to one and the same general stratum and was evidently in continuous use.

The body was normally extended, occasionally on one side or the other, with the head to the north (between north-west and north-east, but usually within a few degrees of north). Mr. Sastri observed only one exception, a burial with the head to the south. Grave-pits varied in dimensions, ranging from 10 to 15 feet in length, $2\frac{1}{2}$ to 10 feet in width, and dug to a depth of 2 to 3 feet from the contemporary surface. An average grave measured superficially 10 by 3-4 feet, with a depth of 2 feet. The pit was generally wider towards the head. Its large size was due to the custom of including large quantities of pottery, mostly near the head but some also at the feet and along the sides and occasionally below the body. The number of pots accompanying a burial ranged from two to forty, with an average of fifteen to twenty. Most of the types were such as occur on habitation-sites of the mature Harappā culture.

Personal ornaments were sometimes worn by the dead.¹ In the 1946 series, a copper ring was found on the ring-finger of a right hand, while Mr. Sastri had previously found two skeletons each with a necklace of steatite beads, two with anklets of paste beads, and one with an ear-ring of thin copper wire. Shell bangles and beads of steatite and paste appear to have been the most common accompaniments.

Besides pottery and personal ornaments, toilet objects occasionally formed a part of the grave-furniture. From the total number of graves found in 1937-1946, twelve yielded each a handled copper mirror; others produced mother-of-pearl shells; one an antimony stick; and one, a large shell spoon.

It may be noted that some of the graves contained, besides a human skeleton, a few decayed animal-bones. One grave included the bones of a fowl, together with a small handled lamp, placed at the feet of the dead.

(c) THE GRAVES OF CEMETERY R 37 FOUND IN 1946²

The burials found in 1946 in Cemetery R 37 were numbered 1-10 in order of their discovery.

Burial 1.—The burial (pl. XXXVI B) contained the extended skeleton of a strongly-built male, oriented from south to north (4° magnetic) with the head to the north and slightly turned to the west. The grave-pit, only a foot and a half below the present surface, was 11 feet long, $4\frac{1}{2}$ feet wide and $2\frac{1}{2}$ feet deep. The skeleton had been much disturbed by monsoon-rains, which had exposed a part of it. With it were twenty-one pots, all placed near and about the head except two, of which one lay along the left side and the other below the skeleton itself.³ The types represented were I, IIc, IIIe, IVa, IVc, IX, XVIIId, XXVIIb, XXVIIc, XXIX, XXXVIIa and XL (below, pp. 101 ff.). A chert flake and a steatite disc-bead were found near the right fibula.

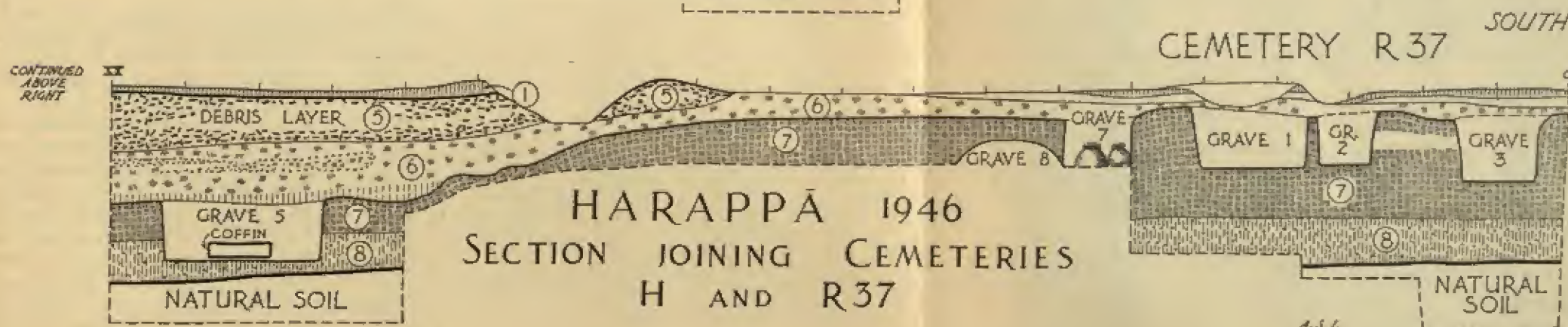
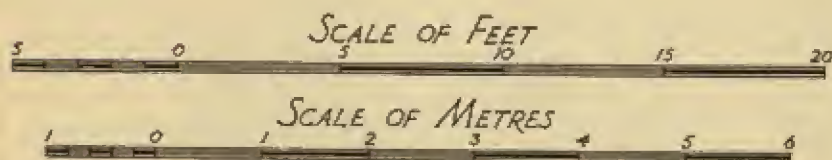
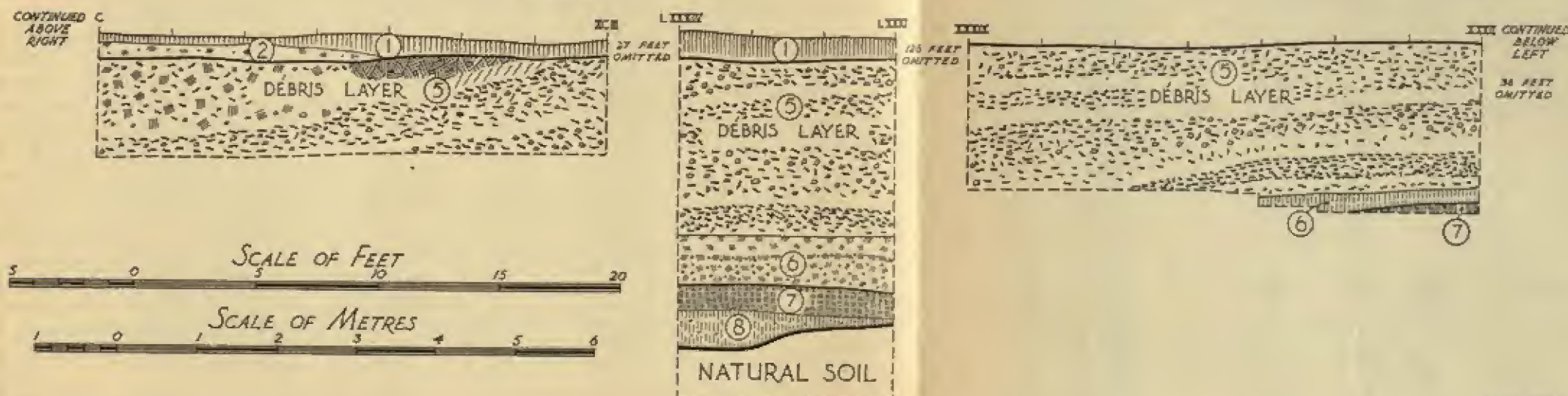
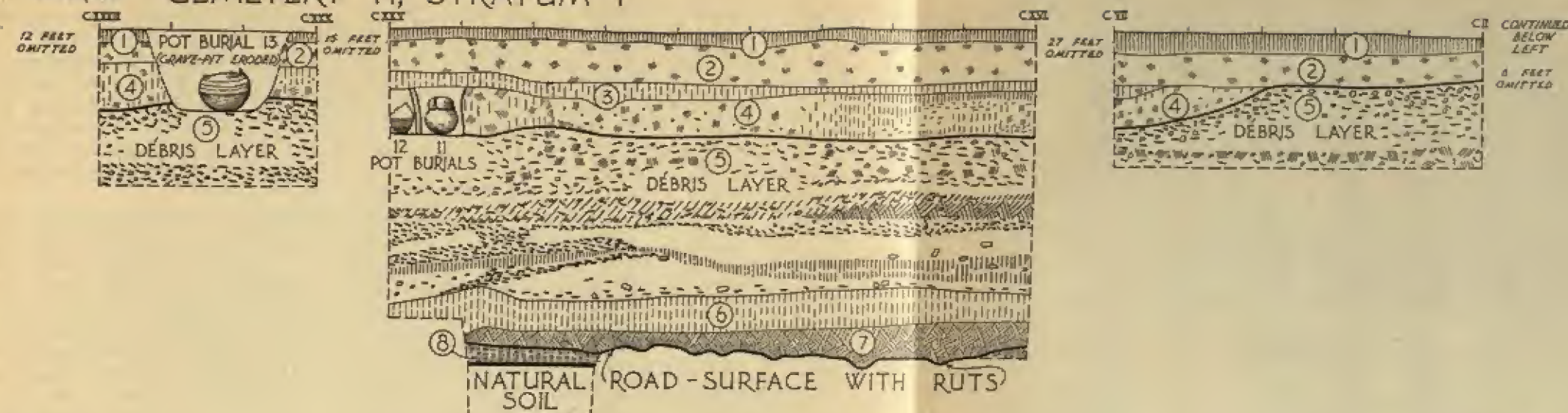
The general contour of the skull is long and ovoid (length-breadth index 73.30) with high forehead, prominent right superciliary arch (the left broken) and high and prominent nasal bridge. The right frontal eminence is slightly pronounced, due probably to distortion; the corresponding left region is not so well-marked, owing to disintegration. The orbits are square-shaped. The mastoid processes are remarkably prominent, especially the one on the right. The occipital shows strong muscular impressions. A small remnant of the first

¹ It may be observed that personal ornaments and toilet objects were totally absent from the burials of Cemetery H, Stratum II, except in two cases, in one of which a female was found wearing a gold bangle on the left wrist, while in the other a crushed human jaw had three surviving teeth bound with fine gold wire for security or decoration.

² Details relating to the skeletons are provided by Mr. H. K. Bose, Anthropological Assistant, Archaeological Survey of India, working under the direction of the Anthropological Survey of India.

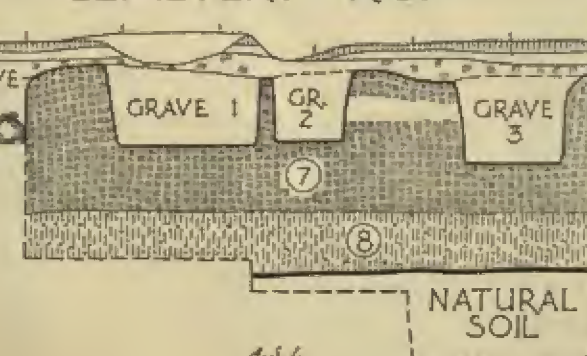
³ The practice evidently was to place the body nearly half-way up in the grave-pit.

NORTH CEMETERY H, STRATUM I



HARAPPĀ 1946
SECTION JOINING CEMETERIES
H AND R37

CEMETERY R37 SOUTH



A.S.I.

premolar and highly worn-out incisors and canine teeth are present on the left side of the upper jaw. The portion of the alveolus behind the first premolar is completely absorbed. The right half of the alveolus shows sockets without teeth for the central incisor and the canine and the roots only of the lateral incisor and first premolar. The crown of the second premolar is very much worn out. The second molar shows a deep carious cavity on the postero-medial aspect. The alveolar portion at the site of the third molar has been absorbed.

The cranial sutures are not visible excepting the parieto-temporal, occipito-mastoid and a part of the parieto-occipital. As far as could be observed, the sagittal, lambdoidal, coronal and basilar sutures are all closed.

The lower jaw is well-developed and complete. The left half shows all the teeth excepting the second molar. The right half has the incisors, canine, and the first premolar only, the second premolar and the molars being absent and the corresponding alveolar margin completely absorbed. The dental arch shows a relatively rounded form.

From the general appearance of the skull and the lower jaw, it can be presumed that they belonged to a male adult who suffered from serious dental troubles. From the state of the closure of the sutures, the age may be inferred to have been 40-50 years. The height of the skeleton was about 5 feet 10 inches.

Burial 2 (pl. XXXVI B), immediately west of the former, comprised an extended female skeleton, oriented from south to north (14° magnetic), with the head to the north and turned to the east. The grave-pit, $10\frac{1}{2}$ feet long, $2\frac{1}{2}$ feet wide and 2 feet deep, was only a foot below the surface. The skeleton was fairly intact except for the right ulna and radius which were dislodged. The legs were slightly flexed.

The pottery included twenty-one pots, mostly near and around the head, though some lay beneath the skeleton and two, a jar (type XLI) and a round water-jar (type XLa) immediately south of the legs. Types represented were Id, IIa, III, IV, V, Va, Vb, VI, VIb, XIVa, XVII, XVIIa, XVIIb, XXVIIIa, XXX, XXXII, XLa, XLI and XLIIa. A copper mirror (pl. LII C) was found in the round water-jar mentioned above, and near the feet lay a disc-bead of steatite.

The skull is complete excepting the bones forming the left norma lateralis. The right side of the face is complete, and in the maxillary region a complete set of fully erupted teeth can be seen, though the third molar is very small and consists of a single cusp only. The left side is incomplete from the total loss of the zygomatic and the upper part of the maxillary bones. It has the incisors, canine and molars 1 and 2, and three open sockets for the premolars and the third molar.

From the top the skull is long and ovoid (length-breadth index 71.43?). The right superciliary arch is not prominent and the glabellar region is broken. The right frontal eminence is not marked as the bone in this region is fractured and depressed. The right orbit is small and squarish. The mastoids are short and small though the left one is partly broken and has disintegrated. The nasal bridge is high and prominent.

The spheno-basilar suture appears to have united. The other sutures, as far as can be seen, are open excepting the lower part of the right coronal suture which seems to be in the process of closure.

The lower jaw is small and light, with a narrow dental arch. All the sixteen teeth are present and well-preserved excepting the second right molar which is partially broken. The mandibular angle is round on the right side and lost on the left. The third left molar appears to have newly erupted. The chin is well-formed and squarish.

From the skull and the lower jaw it appears that they belonged to an adult female about 30 years of age.

The height of the skeleton was 5 feet 4 inches.

Burial 3 was not completely exposed but had been disturbed. Only a fragmentary tarsus was found. Pots, twenty-one in number, lay mostly at the sides. They included types Ib, II, IIIb, IVb, XIa, XIV, XVII, XVIIb, XXXIII, XXXIIIb, XXXIXf, XLb and XLIIc.

Burial 4 had been disturbed by burials 1 and 2, which overlapped it. The skull and a tibia were found. The funeral pottery included types Ic, IIb, IXd, IXe, XIVc, XIVd, XIVg, XXIII, XXIV, XXVIIId and XXXIIId.

Burial 5 was a coffin-burial, the only one of its kind so far known from the Indus Valley cultures. The body, probably that of a female, was placed within a wooden coffin, 7 feet long and 2 to $2\frac{1}{2}$ feet (towards the head) wide. Owing to the highly-decayed state of the material the exact height of the coffin could not be ascertained, but it was capacious enough to accommodate the body without any constriction. The thickness of the sides of the coffin was $1\frac{1}{2}$ inches; and streaks of sticky black substance running over the toes (pl. XXXVII A) suggested the presence of a lid. Traces of a reed-shroud, available from the pelvic girdle to the upper vertebrae, were also met with. The presence of some light green substance over and around the body suggested the use of preservatives; the final chemical report is not yet available, but will be included in the substantive publication of the cemetery.

The grave-pit which contained the coffin and the concomitant pottery was nearly $4\frac{1}{2}$ feet below the present surface and measured 11 feet long, $5\frac{1}{2}$ feet to $6\frac{1}{2}$ feet (towards the head) wide and $2\frac{1}{2}$ feet deep.

The skeleton lay in an extended position from south to north (343° magnetic), the head to the north and face upwards. It was fairly intact except for the skull which had been badly crushed.

Of the thirty-seven pots recovered from this grave the majority lay huddled near and against the head of the coffin. Some pots lay to the west of the coffin, while one was inside the coffin itself. The types represented were Ie, IIc, IXf, XVII, XXIIa, XXIII, XXIIIa, XXIIIb, XXIIIc, XXVIIa, XXXIIIa and XXXIIIc. On the right middle finger was a plain copper ring; one shell ring (probably ear-ring) lay to the left of the skull and two to the left of the shoulder.

The skull had been crushed to fragments through the collapse of the coffin. Of the three largest fragments, one shows the crushed upper jaw of both sides. On the right it shows the second incisor, one canine and two premolars and on the left, two incisors, one canine and two premolars, all worn out. On the left, the malar, part of the lateral wall and floor of the orbit, the greater wing of the sphenoid and a part of the squamous part of the temporal bone can be seen.

In the mandible, the body, ramus and coronoid process are almost complete on both sides, and the left condyle can be seen articulated in a mass behind the zygomatic fossa. The chin portion is partly lost. The right half shows eight teeth complete. All the teeth excepting the first molar are worn out. In the left half, only four teeth are visible with a gap between the canine and the first molar where the alveolar margin shows absorption suggesting that the individual lost the premolars at an early age.

The reverse of the same fragment shows an upper section in which (a) on the left side three worn-out molars are seen, the first with a carious cavity, (b) in the central portion a mass of depressed bones driven forwards between the two halves of the upper jaw showing the fractured first and the distorted second and portions of the lower cervical vertebrae, and (c) in the right portion the much worn-out second and third molars. The first molar is absent and the corresponding alveolar interval is partly absorbed. There is an uprooted incisor sticking near the right upper molar, probably belonging to the left lower set. In the lower jaw the breadth of the ramus is thin and the appearance of the mandible is feminine. The general appearance of the face is small and feminine.

The second main fragment of the skull shows part of the right frontal bones, right malar and remains of the right frontal process of the maxilla, enclosing between them the distorted right orbit. The frontal bone is definitely feminine in type, since it has a prominent frontal eminence and an indistinct superciliary arch. The neck of the right side of the mandible is clearly visible and its condyle can be seen in a crushed condition close to the mandibular fossa. It also shows a part of the right temporal bone in which the mastoid process is small and feminine in type.

The third fragment shows a portion of the left parietal and a portion of the left frontal, folded at the coronal suture and coalesced together.

From the completely erupted molars and the size of the teeth and from the appearance of the lower jaw and frontal bone and from other available features which could be observed in the above fragments, it can be presumed that the subject was a female 18-25 years of age.

The burial presents features which have not previously been recognized in India but may be found to have some significance in a consideration of the relations between the Harappā civilization and Sumer. Both the coffin and the reed-shroud are familiar in Sumerian cemeteries of the third millennium B.C. At Ur, in graves of Sargonid and pre-Sargonid times, 'the dead man was laid at the bottom of the shaft either wrapped in matting or enclosed in a coffin which might be made of matting, of reeds or wickerwork, of wood or of clay'.¹ To what extent wrapping and coffin were combined in a single grave was difficult to determine. In most cases the matting had been reduced to 'a film of very fine white powder', as at Harappā, where some indication of the lines of the reeds was also retained, though insufficiently to indicate the weave. At Kish, the 'A' cemetery likewise included graves which had been lined with reed-matting.² In other words, the Harappā burial represents a mode customary in Sumer during a considerable period which overlapped and probably preceded that of Cemetery R 37. More than that the present evidence does not warrant.

¹ C. L. Woolley, *Ur Excavations II: the Royal Cemetery* (London and Philadelphia, 1934), pp. 135ff.

² E. Mackay, *Report on the Excavation of the 'A' Cemetery at Kish, Mesopotamia*, Part I (Chicago, 1925), 13; Part II (1929), 130.

Burial 6 had been badly disturbed, and only a few animal bones (probably sheep) were found, with no human bones. Three pots representing types IX, XXII, XXIIIa comprised the funeral pottery.

Burial 7 was not explored, but in the northern fringes of the grave were three pots, of types IV, XVII and XL.

Burial 8 was also incompletely excavated. It appears to have been covered by a low mound. Only a portion of the pelvic region and of the femurs was exposed, and beside these lay an isolated sheep-bone. Two pots, of types XXIVb and XXIII, were recovered.

Burial 9 was disturbed by burial 4, which partially overlay it. Only a hand, with complete phalanges and metacarpals, was found. An interesting feature of the grave was a group of over fifteen flat dishes representing types XXX, XXXa, XXXb, XXXc, XXXI, XXXIb, XXXIIb and XXXIIc.

Burial 10 showed two exceptional features: (i) a mud-brick lining or coffin around the body (pl. XXXVII B), and (ii) a heaped mud-brick filling of the southern end of the grave (pl. XXXVIII A). The grave-shaft was of unusual dimensions—15 feet long, 10 feet wide and 3 feet deep. The body, that of a male, was placed in the northern part of the grave-pit with the head towards the north (4° magnetic).

The mud-brick filling of the southern end of the grave stood to a height of 1½ feet above the surrounding level (pl. XXXVIII A), and indicates that this burial, like No. 8, was marked by a low mound, resembling that of Muslim graves at the present day.

Funeral pottery was unusually sparse in this grave. Only two pots were found (types IIIa and XIc), but these were enough to class the burial as of the true Harappā culture.

The skull was almost complete. The zygomatic process of the left temporal bone and the third left upper molar are missing. The general contour of the top of the skull is long and ovoid (length-breadth index 71.28). It has a high forehead, prominent superciliary arches and a high nasal bridge. The facial and frontal bones, mastoid processes and occipital bone are prominent and masculine in type. The orbits are square-shaped. Muscular impressions in the occipital region are well-marked. The upper right third molar is unerupted. The sutures on the vault of the skull are all open. The lower part of the coronal sutures have been obliterated. The spheno-basilar suture is closed.

The lower jaw is well-formed with a prominent chin having prominent muscular impressions. The left angle of the mandible is everted. The teeth are all present excepting the right lateral incisor which has fallen out. Both the third upper molars are well-developed and unworn. The shape of the dental arch is ellipsoid.

From the above it appears that the skull belonged to a male 30–40 years of age.

(d) THE GRAVES OF CEMETERY H I FOUND IN 1946

Three pot-burials of Cemetery H, Stratum I, were found in 1946, and were numbered 11–13. Their stratigraphical position has been noted above (p. 85); it may here be recalled that Nos. 11 and 12 were co-eval, and that No. 13 was slightly later.

Burial 11.—The pot, painted in black around the shoulder (pl. XXVII B, and fig. 25, HI 1), was covered with the fragment of another jar with finger-groove pattern.

It had to be sawn into halves for the proper extraction of the bones which it contained. These had been inserted without system, with the skull on one side near the centre, in an upside-down position, surrounded by long bones. The following is a list of the bones:—

Skull	..	..	1
Lower jaw fragments	..	..	4
Femora	..	..	2
Tibia	..	..	2
Humerus fragments	..	..	6
Fragments of other long bones	..	..	8
Scapula fragments	..	..	4
Patella	..	..	2
Vertebrae with fragments	..	..	8
Phalanges	..	..	10

The skull was almost complete, with a part of the left condyle of the lower jaw sticking in a mass of earth in the corresponding mandibular and infra-temporal fossa. Viewed from above, the outline of the skull is long and ellipsoid (length-breadth index 76.30). It has prominent frontal and parietal eminences, with short vertical

forehead and indistinct superciliary arches. The nasal bridge is of moderate height and length. Six teeth are present on the right side, but the two last molars have dropped out. Of the seven teeth present on the left side, the central incisor has dropped out and the last molar is very slightly worn in the posterior cusp. The left orbit is circular and the right one oval, probably due to distortion. The mastoid processes are small and short. The sutures on the vault of the skull are all open. The speno-basilar is closed. The lower jaw is in fragments.

The skull is that of a female 25-30 years of age.

Burial 12 (pl. XXXVIII B), a foot from No. 11, had been disturbed and the pot was very fragmentary. It had been ornamented with horizontal finger-grooves.

The human bones contained by the pot were also fragmentary and lay in a jumbled mass. Strangely enough, *two* skulls, which have been numbered 12(a) and 12(b), were included, although the long bones appear to have belonged to a single individual. Both skulls are in a very bad state of preservation, the facial part of the one being completely smashed.

The following is a list of the bones:—

Skulls	..	..	..	2
Fragments of femur, tibia and other long bones	..	..	..	16
„ of mandible	..	..	..	1
„ of vertebrae	..	..	..	4
„ of pelvic brim	..	..	..	4

Skull 12(a) is an almost complete skull with the portion of the right condyle of the mandible sticking in a mass of earth in the infra-temporal fossa. Viewed from top the outline is long and ovoid (length-breadth index 73:99) with prominent frontal eminences. The parietal eminence is more marked on the right. The forehead is short and vertical with indistinct superciliary arches. The nasal bridge is moderate in height and length. The orbital openings are almost circular on both sides. The crowns of all the teeth are eroded to the alveolar margin excepting the third right upper molar which is unerupted. The right mastoid process is small and the left is partly broken. Muscular attachments on the occipital bone are not well-marked.

The coronal suture is open on the right but it cannot be observed on the left due to disintegration of the table. The sagittal and lambdoidal sutures are complete and open. The speno-basilar suture seems to be still ununited.

The skull seems to belong to a female 18-25 years of age.

Skull 12(b) has a disintegrated facial part. The frontal bone is only partially present on the left side showing a prominent frontal eminence. The contour appears to be almost ellipsoid though slightly distorted on the right. The zygomatic processes are absent on the right and partially present on the left. The mastoid processes are very small and short.

The coronal suture is only partially visible and open. The sagittal suture is visible in the anterior aspect and is open. The lambdoidal suture is open as far as can be seen. The sphenobasilar suture is open.

The skull appears to be that of a female of less than 25 years of age.

Burial 13.—The jar had already been exposed and badly disturbed by the rains.

It contained some fragments of the bones of the skull, long bones and others, very few in number, in comparison with the contents of the other two pot-burials.

The following is the list of bones found in the pot:—

Fragments of skull	..	..	..	10
„ of lower jaw	..	..	..	2
„ of fibula, humerus, radius, etc.	..	..	..	10
„ of ribs, vertebrae, etc.	..	..	..	10
„ of phalanges	..	..	..	4

6. THE POTTERY

(a) FROM THE DEFENCES

Three groups of sherds from cutting HP XXX through the western defences of the citadel straddle the work of construction and suggest important inferences relating to the

early occupation of the site. They are not sufficiently extensive to enable firm conclusions to be drawn, but they provide a useful guide to future excavation.

The three groups are derived: (i) from the only occupation-layer (pl. XXII, level 26) which preceded (and immediately underlay) the defences; (ii) from the material which accumulated during the first stages of construction, i.e. from the building-level 26A; (iii) from the actual material of which the defences were built. Group iii, though derived from integral parts of one and the same structure, is divisible into two sub-groups: (a) Sherds incorporated in the mud-bricks of the 'rampart', wall and platform and consisting of pottery essentially similar to Group i—evidently the relics of the earlier occupation which happened to be lying about at the site where the bricks were quarried; and (b) sherds incorporated in the earth, mud, working-platforms, etc., which constituted the front of the 'rampart' and the greater bulk of the platform and rose gradually as the principal task, the construction of the mud-brick wall, proceeded. This sub-group mainly represented the culture of the actual builders, i.e. the true Harappā culture.

The pottery of Group i from the early occupation-level (layer 26) underlying the mud-brick defensive wall shows an individuality which isolates it from the familiar Harappā ceramic. Only thirty sherds were found, but of these not more than one (an unspecialized foot-stand, fig. 8, 9) has any analogue in the mature Harappā culture. As a whole, the ware of this early group is finer than that of the latter, and its slip is mostly of a dark purple-red with a notably dull matt surface. More than half of the total number of sherds are decorated with carefully-ruled horizontal black bands, and one sherd shows a horizontal line impressed by a cord (pl. XL, 7). The commonest type is a well-made globular beaker with straight or slightly everted rim, which is usually painted black externally, and sometimes with a pedestal-base. Generally, its analogues are to be sought in the 'Zhob culture' of northern Baluchistan.¹

Group ii, from the building-level of the defences, consists of only five sherds, at least two of which belong to the same series as Group i.

Group iiia, from the actual mud-bricks of wall and 'rampart', about 150 sherds, is also largely of the same series, and indeed includes only two sherds of definitely Harappā types (below, figs. 9, 18 and 26).² One sherd (pl. XLII, 9) shows the concentric-semicircle design which is found on a sherd from Periāno Ghunḍai in the Zhob valley, a site on which the Harappā culture is not represented; and the shape of the latter sherd is identical with that of the globular beakers of our Groups i-iiia. The large Group iiib, on the other hand, from the earthen make-up of the 'rampart' and the platform, is almost entirely of the true Harappā culture, with the exception of six sherds, of which one (pl. XLII, 10) is comparable with pottery from the pre-Harappā layers at Amri in Sind.

In these groups, the contrast between the true Harappā sherds introduced at the time of construction and the non-Harappā sherds of the preceding or lingering occupation is so marked as to indicate the probability of a basic difference of culture. The affinities of the pre-Harappā phase are not yet evident, and in any case a far more ample representation of

¹ I adopt the established phrase 'Zhob culture' with reluctance. In the present rudimentary stage of research, it has a momentary utility as indicating miscellaneous groups of red-ware pottery from northern Baluchistan. But the Zhob valley-Loralai region in fact produced very various ceramic industries, not all of them red-ware; and in any case we have little more than the pottery of these sites, and pottery in itself constitutes an 'industry' but not a 'culture'. We know at present hardly anything of the cultural context of these ceramic industries.

² The similar incorporation of sherds of an earlier culture in the mud-bricks used by a later one was observed by Brigadier E. J. Ross in his careful work at Rānā Ghunḍai, northern Baluchistan. *Journal of Near Eastern Studies*, V, No. 4 (Chicago, 1946), p. 295.

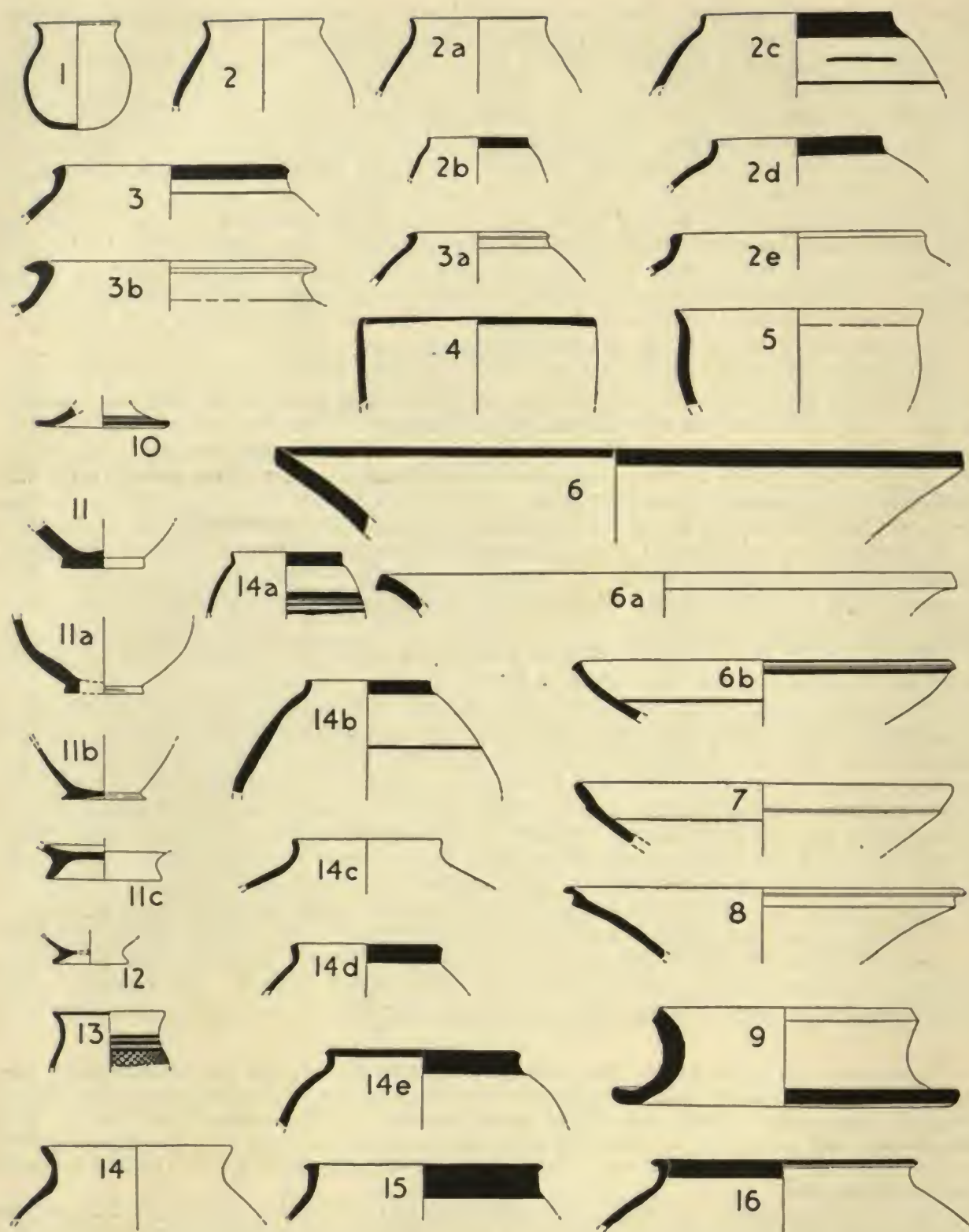


FIG. 8. *Early pottery from the defences.* †

it is necessary before definite results can be expected. The provisional inference, however, is that the building of the defences marked the first impact of the Harappā culture on this site, and that the builders were preceded here by a town- or village-occupation representing a variant or even alien culture.

Group i

Fig. 8

1. Small *loṭā*-shaped vase with flaring mouth and rounded base. This type does not occur in the mature Harappā culture.

2. Medium-sized globular vase with flaring rim (shape of base unknown). Variant 2*a* has a straight rim, while 2*b*, of unusually fine ware, has a slight ledge at the neck and the rim is painted with a black band. See also pl. XL, 3. Variants 2*c* and 2*d* (also pl. XL, 2) have a wide mouth and bulged profile, while 2*e* has a slightly clubbed rim. The shape of the base in all these cases is unknown. It may be noted that these vases are characteristic of the pre-rampart industry and are absent from the mature Harappā culture.

3. Jar with ledged neck and beaded rim. Variant 3*a* is smaller with a shorter neck, while 3*b* has a beaked rim. Similar rims and ledged necks are also found in the mature Harappā culture, but the complete shapes of the early examples here illustrated are unknown.

4. Straight-sided bowl. It may perhaps be compared with Mackay type UA, pl. XLI, 72 in having straight sides, but the shape of the base of the present example is unknown.

5. Bowl with flaring rim. This type does not occur in the mature Harappā culture.

6. Basin with oblique-edged rim. Variant 6*a* is slightly concave. Variant 6*b* has a convex upper profile and a nail-head rim. See also pl. XL, 6.

7. Basin with slightly cordoned rim. This type does not occur in the mature Harappā culture.

8. Basin with sharply carinated shoulder and slightly concave lower profile. This type does not occur in the mature Harappā culture.

9. Ring-stand with recurved base. The type is common in the mature Harappā culture.

10. Small lid of fine ware, painted externally with black bands. See also pl. XL, 4.

11 and 11*a*. Lower portions of vases with a disc-base. Variant 11*b* has a slightly concave base, while 11*c* has a pedestal-base.

Pl. XL

1-3. Rim-fragments with black bands. See also fig. 8, 2*b*.

4. Fragmentary lid, painted externally with black bands. See also fig. 8, 10.

5. Sherd painted with black bands.

6. Fragmentary basin with nail-head rim and black bands, both inside and outside. See also fig. 8, 6*b*.

7. Rim-fragment of a basin of coarse ware, with horizontal cord impression.

Group ii

Fig. 8

This group yielded only five sherds which are essentially similar to those from Group i. They include a small pedestal-base (fig. 8, 12), resembling 11*c*.

Group iiia

This group yielded a relatively larger quantity of pottery closely related to Groups i and ii. The painted designs include, besides simple horizontal bands round the body and the neck (pl. XLII, 1-8), oblique bands and groups (pl. XLI, 5 and 9), vertical wavy lines (pl. XLI, 6), criss-cross pattern (fig. 8, 13) and concentric loops (pl. XLII, 9). The last pattern occurs on a fragmentary vase from Periāno Ghunḍai in the Zhob valley of Baluchistan (pl. XLII, 9*a*, and fig. 9, 32*a*).

Figs. 8 and 9

13. Vase with flaring mouth, shoulder decorated with bands and criss-cross pattern. See also pl. XLI, 1.

14. Medium-sized vase with flaring rim. It is a thicker and larger variant of 2 (see above). Variant 14*a*, of unusually fine ware, has a straight rim, painted externally with black bands. Variant 14*b* (also pl. XLII, 3) has tapering sides, while 14*c* has a wide mouth and bulged profile. Variant 14*d* has an oblique-edged rim, which is more prominent in 14*e*.

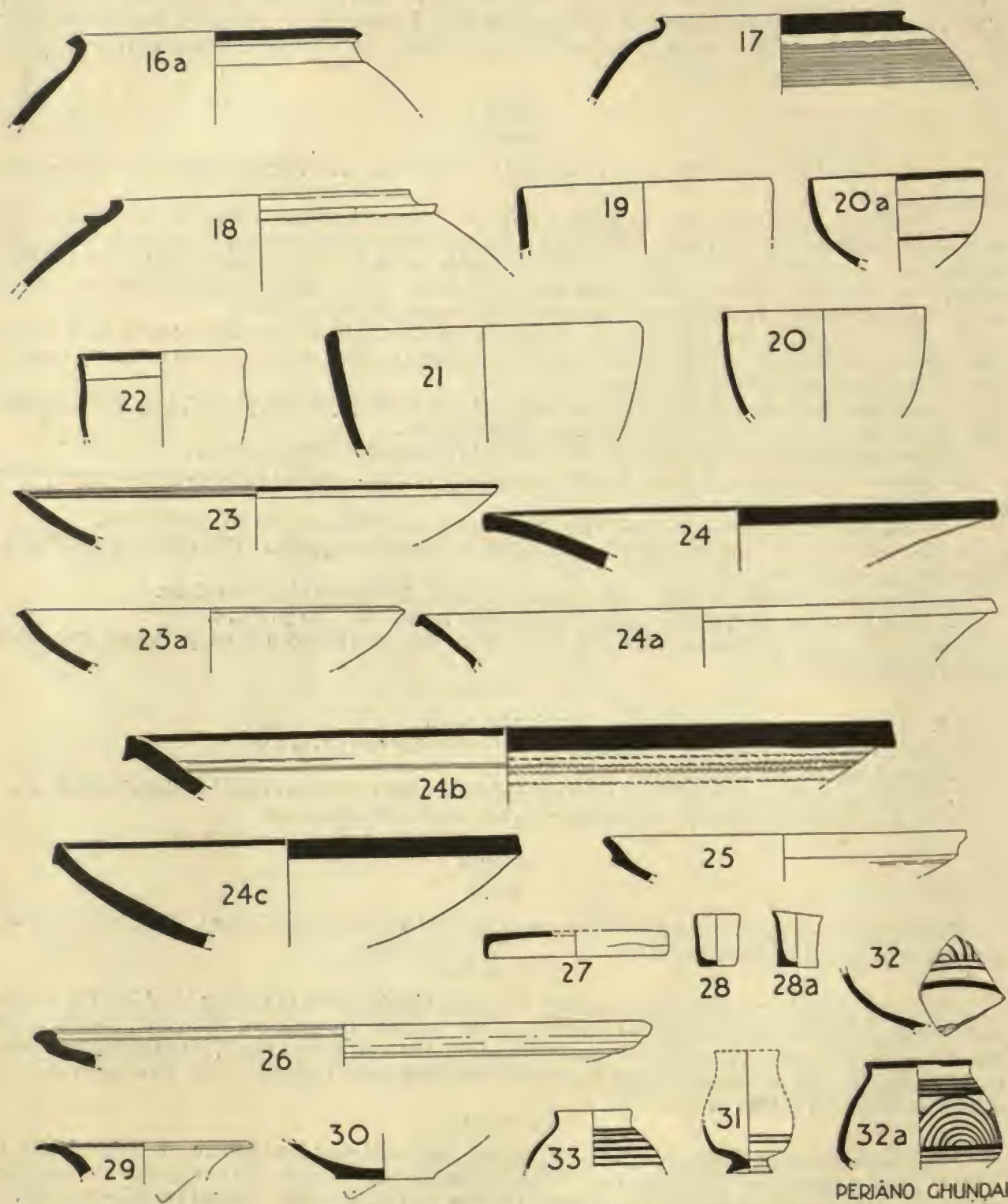


FIG. 9. Early pottery from the defences. †

15. Wide-mouthed jar with straight neck and beaded or out-turned rim.
16. Jar with ledged neck and beaded rim. Variant 16a has a beaked rim.
17. Jar with grooved bulbous exterior and externally painted under-cut rim. See also pl. XLII, 7.
18. Large jar with flange at the neck evidently to receive a lid. The type, not found at Mohenjo-daro, is represented by a few examples at Harappā.
19. Straight-sided bowl, similar to fig. 8, 4.
20. Bowl with rounded sides. Variant 20a, externally decorated with black bands, has a slight carination. The type does not occur in the mature Harappā culture.
21. Bowl with slightly tapering sides, smooth outside and rough inside. The type does not occur in the mature Harappā culture.
22. Bowl with slightly concave upper profile.
23. Simple rimless dish with rounded profile. See also pl. XLI, 8. Variant 23a has a slightly beaked or out-turned rim.
24. Large basin with beaked rim. Variant 24a, of thinner fabric, has a slightly concave upper profile. Variant 24b has a more prominent beaked rim and bears cord-marks on the exterior. Variant 24c has an oblique-edged rim and a convex profile.
25. Basin with cordoned or flanged rim. It is a variant of 7 (fig. 8).
26. Basin with inverted rim and corrugated upper profile. The type recurs in the mature Harappā culture but is not very distinctive (Mackay Type V, pl. LXXXII, 27).
27. Miniature dish with flat base, straight sides and slightly incurved rim. The type does not recur in the mature Harappā culture.
28. Miniature cylindrical pot with flat base. Variant 28a has a flaring mouth. The type does not occur in the mature Harappā culture.
29. A unique piece of indeterminate shape, with an internally painted broad flaring rim, which is provided with a hole, evidently for suspension. See also pl. XLI, 4.
30. Lower portion of a vase with a disc-base.
31. Lower portion of a slightly carinated vase with a prominent ring base. Restored from an analogous type from Periano Ghunḍai in the Zhob valley, northern Baluchistan.
32. Sherd ornamented in black with horizontal bands and concentric circles, comparable with 32a from Periano Ghunḍai, northern Baluchistan. See also pl. XLII, 9 and 9a.

Pl. XLI

1. Rim with black bands and criss-cross pattern. See also fig. 8, 13.
2. Rim painted externally with broad black bands.
- 3 and 7. Sherds of thick ware, painted with black bands.
4. Rim-fragment with broad painted black bands and a hole for suspension. See also fig. 9, 29.
5. Sherd painted with horizontal and oblique black lines.
6. Sherd painted with black horizontal and vertical wavy lines.
8. Upper part of a rimless dish with internal and external black horizontal lines. See also fig. 9, 23.
9. Basin painted externally with a horizontal black band and curved lines.

Pl. XLII

- 1, 2, 4 and 5. Rim-fragments painted with broad black neck-bands.
3. Vase painted with a broad black neck-band and a horizontal line below. See also fig. 8, 14b.
- 6 and 8. Rim-fragments painted with broad black neck-bands and horizontal lines below.
7. Jar with grooved exterior and externally black-painted rim. See also fig. 9, 17.
9. Sherd showing black concentric-semicircle design, comparable with 9a, a sherd from Periano Ghunḍai. See also fig. 9, 32 and 32a.

Group iiib

This group yielded a fair quantity of pottery which essentially belongs to the mature Harappā culture in ware, shape and decoration and is readily distinguished from the preceding groups. Exceptions are provided by six sherds from the front portion of the 'rampart' which appear to have been survivals from the earlier or

pre-defence occupation. One of these (pl. XLII, 10) is comparable with pottery from the pre-Harappā layers at Amri, and, of the five sherds painted with neatly ruled horizontal black bands, one each is identical in shape with Nos. 14, 14c and 14d, while the remaining two are of similar fabric but are too fragmentary to show the shape. In a similar cutting further north, two exceptional sherds were also found in the make-up of the 'rampart' in the midst of pottery otherwise of the Harappā culture. One of these is identical in ware, shape and decoration with 14c, while the other, showing an analogous shape, is of a notably finer reddish buff fabric with an egg-shell polish on the outer surface and bears neatly ruled horizontal black lines (fig. 9, 33; pl. XLII, 11). The majority of the pottery is plain and shows characteristic Harappā shapes, such as R37, Types I, II, IV, VI, XI, XII, XXII, XXXIIIe, XLIV and Mackay Types D, F, AE, AC, W and X. The 'Indus goblet', which is particularly characteristic of the upper levels of the Harappā culture, is, perhaps significantly, conspicuous by its absence. A common feature of R37 Types XI and XXII, occurring in this group, is the presence of a dull yellowish slip on the lower exterior, which in the latter type is generally marked by a closely-combed wavy band (fig. 10, 34). Painted sherds are few and show familiar Harappā designs.

Figs. 9 and 10

33. Reddish buff fragment of beaker with egg-shell polish and carefully ruled horizontal black lines. See also pl. XLII, 11.

34. Vase (R37, Type XXII) with yellowish slip on the lower exterior and a band of combed pattern.

35. Carinated bowl with sagger-base, painted with two horizontal black bands, and with a rough cross in relief on the underside of the base.

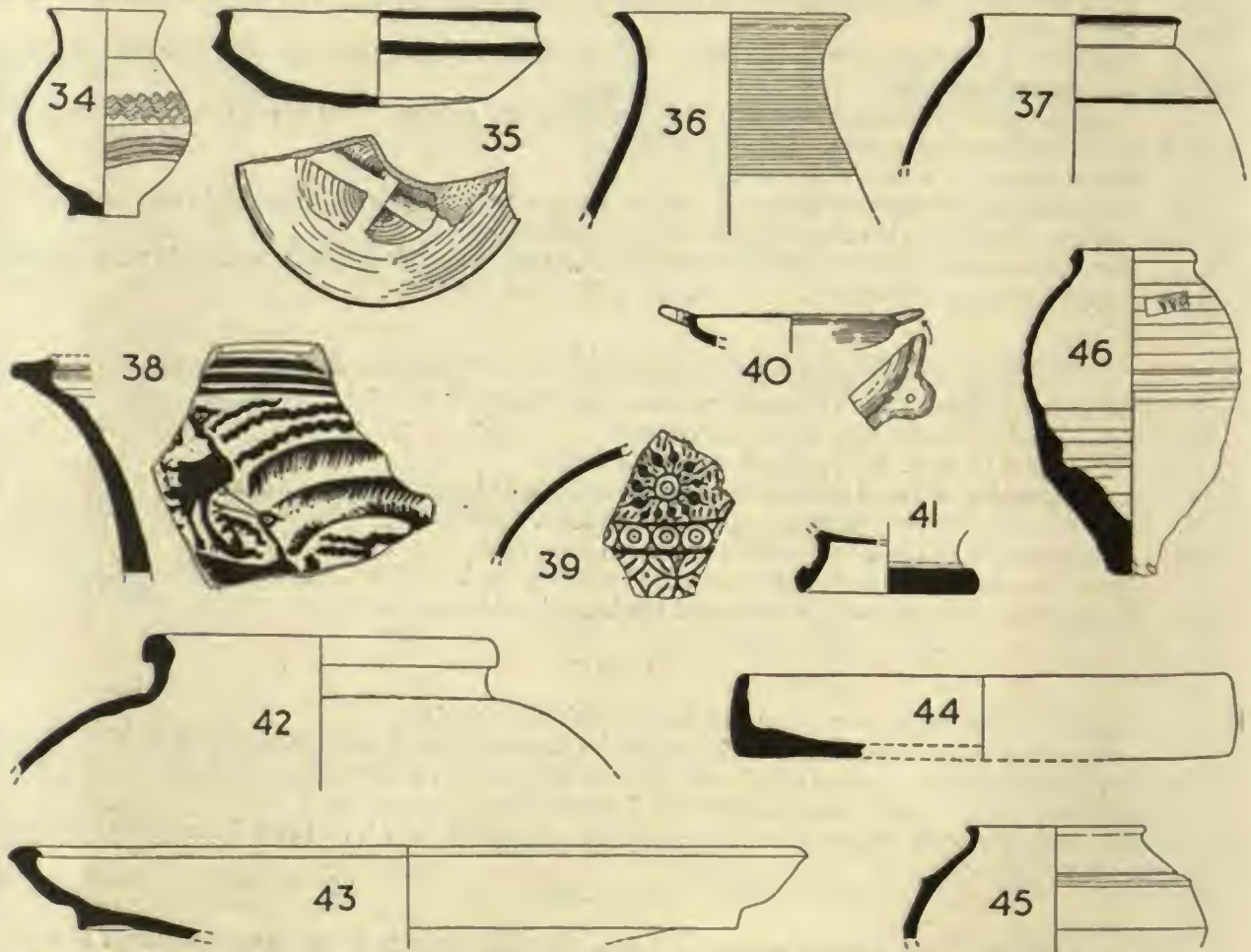
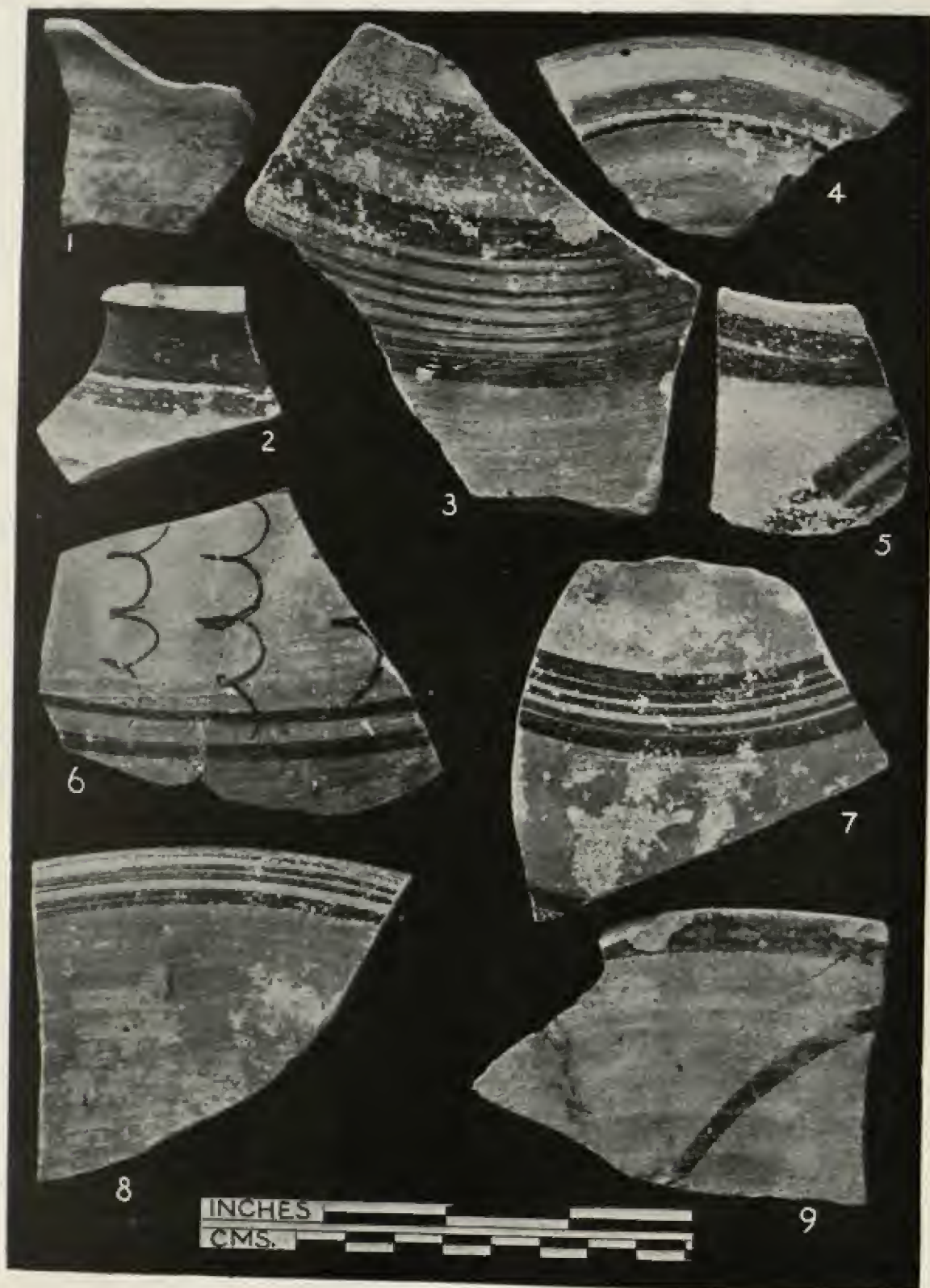


FIG. 10. 34-40, pottery from the defences; 41-45, pottery from the structural periods I-VI; 46, stamped goblet from a late layer (see p. 120). $\frac{1}{4}$



Pottery from pre-defence deposits



Pottery from the mud-brick fortification and 'rampart'



1-9, pottery from the mud-brick fortification and 'rampart'; 9a, sherd from Periāno Ghunḡai; 10-11, sherds from the earthen make-up of the 'rampart'



Pottery from the earthen make-up of the 'rampart' and platform



Pottery from the earthen make-up of the 'rampart' and platform



** Cemetery H * pottery found beside fragmentary walls adjoining western gateway B*

36. Fragment of a wide-mouthed beaker coated with yellowish slip on the lower exterior (below the horizontal lines which indicate a red surface on the drawing).
37. Fragment of a buff-slipped vessel of red ware, painted with simple horizontal bands.
38. Rim-fragment of a vessel (R 37, Type XLI) painted with peacocks and palm-fronds.
39. Sherd painted with intersecting circles, a row of concentric circles with dot, and a pattern consisting of *pipal*-leaves emanating like rays or petals from concentric circles (see also pl. XLIV, 5). A similar pattern occurs at Chanhū-daro in the Harappā levels (Mackay, *Chanhū-daro*, pl. XXXIII, 10 and 14).
40. Small shallow dish with perforated lug handle—a rare feature in Harappā pottery.

Pl. XLII

10. Sherd comparable in fabric and decoration with Amri ware.
11. Reddish buff fragment of beaker with egg-shell polish and horizontal black lines. See also fig. 9, 33.

Pl. XLIII

1. Rim-fragment of a vessel (R 37, Type XLI) painted with *pipal*-leaves.
2. Rim-fragment painted with criss-cross pattern.
3. Sherd painted with double row of vertical wavy lines and blade-shaped conventional leaf-pattern.
4. Sherd painted with bipinnate leaves and roundels with dots.
5. Sherd painted with the linked-ball motif.
6. Sherd painted with conventionalized plant-design.
7. Sherd painted with roundels and dots.
8. Sherd painted with comb-patterns and squares with dots.
9. Sherd painted with stars enclosed in lozenges.

Pl. XLIV

- 1 and 2. Sherds painted with intersecting-circle patterns.
3. Sherd painted with conventionalized plant-design.
4. Sherd painted with fish-scale pattern.
5. Painted sherd. See also fig. 10, 39.
6. Sherd painted with peacock-design.
7. Fragment of a vessel similar to R 37, Type XLI, bearing three fish in a vertical row.
8. Sherd painted with triangles and mat-pattern.

Pottery from the structural Periods I–VI on the platform (fig. 10, 41–45)

The pottery from the structural Periods I–VI (numbered from bottom to top) comes from a restricted area (20 feet × 18 feet) but is sufficient to indicate the presence of the Harappā culture in all layers. Two points may be noticed. First, painted vases are rare, and show only horizontal black bands. Secondly, the 'Indus goblet' (Mackay Type B and figs. 10, 46 and 13, III) is present in all the periods. The commonest shapes, occurring in all the periods, in an order of frequency, are the ribbed cooking-vessels, usually with a burnt exterior (Mackay Type F), storage-jars (R 37, Type XL), shallow dishes (Mackay Type W), cylindrical vases with thick flat bases (Mackay Type S), small cylindrical beakers (Mackay Type H), 'Indus goblets' (Mackay Type B), and jar-stands (Mackay Type AE).

From the restricted presence of certain specialized types, the following conclusions have been tentatively drawn with regard to the distinguishing traits of the structural periods:—

Thick hand-made dishes or lids with straight sides are confined to Periods I–III (fig. 10, 44), these being represented by three specimens in Period I and one each in the

other two. The dish-type flanged immediately above the base (fig. 10, 43), the jar with prominent ledged shoulder (fig. 10, 42), and a new variety of pedestal-base (fig. 10, 41) are confined to Period I.

Vessels analogous to Mackay Type D, No. 28, are very rare and come only from Periods I-III. A unique specimen of this type in grey ware occurs in Period III.

The only two examples of miniature offering-stands come from Period V, one of them painted with a rough circle-and-dot on the interior of the cup. Period VI shows, besides the usual type of cordoned cooking-vessel (Mackay Type F), a new variant of this type with a beaded rim (fig. 10, 45).

The following sherds are illustrated (fig. 10):—

41. Fragment of a painted pedestal-base. Period I.
42. Rim-fragment of a storage jar with a prominent ledged shoulder. Period I.
43. Shallow dish with a sharply restricted base. Period I.
44. Thick hand-made dish. Period I.
45. Ribbed cooking-vessel with a beaded rim. Period VI.

Pottery contemporary with the late fragmentary structures on the western terraces (pl. XLV)

This pottery is a mixed group from a layer contemporary with the late and fragmentary buildings on the western terraces (above, p. 74). The group includes, with true Harappā wares,¹ a considerable percentage of the wares characteristic of both strata of the alien Cemetery H. These Cemetery H sherds are of importance as the first found in association with structures. They comprise fragments of a straight-necked jar painted with the ladder-pattern (pl. XLV, 1); jar-covers (Vats, op. cit., pl. LX, 3) of Stratum I type; flasks (Vats, Type G); platters (Vats, Type M) painted on the underside with a row of triangles (pl. XLV, 7, 8); and stumpy dish-on-stands (Vats, pl. LX, 21) of Stratum II type. The decorative designs on sherds of this group include stars (pl. XLV, 2, 3, 4, 6), bird's heads (pl. XLV, 5), and possibly a peacock (pl. XLV, 10), all of which are common to both strata of Cemetery H.

(b) POTTERY FROM THE CEMETERY AREA²

For the study of the pottery found in the cemetery area in 1946, the stratification may be grouped from bottom to top into five series:—

- (i) Layers underlying Cemetery R 37.
- (ii) Cemetery R 37.
- (iii) Layers immediately sealing Cemetery R 37.
- (iv) Débris-layers over (iii).
- (v) Cemetery H.

(i) Pottery from layers underlying Cemetery R 37

The few sherds, invariably plain, from the pre-cemetery layers belong to R 37, Types I, III, IV, XI, XVII and XXXIX. It is noteworthy that it included only one fragmentary base of the Indus goblet (R 37, Type III) which occurs in such profusion in the upper levels

¹ The Harappā types in this group include Mackay Types A, E, F and S; R 37 Type VIa; and bases of vessels analogous to Mackay, pl. LXV, 48.

² The pottery from the cemetery-area has been classified by Mr. Krishna Deva and Mr. S. C. Chandra.

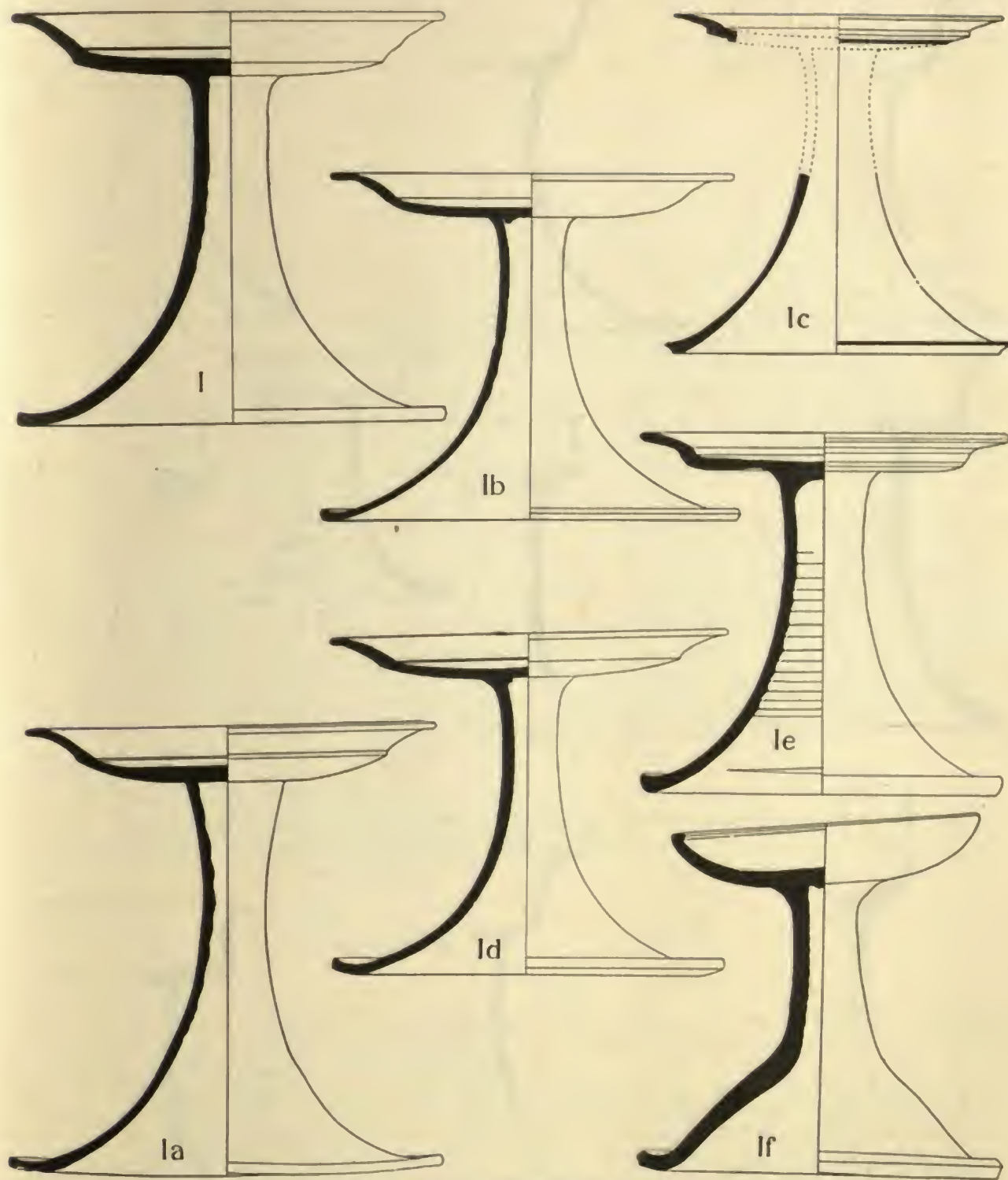


FIG. 11. Pottery from Cemetery R 37. $\frac{1}{5}$

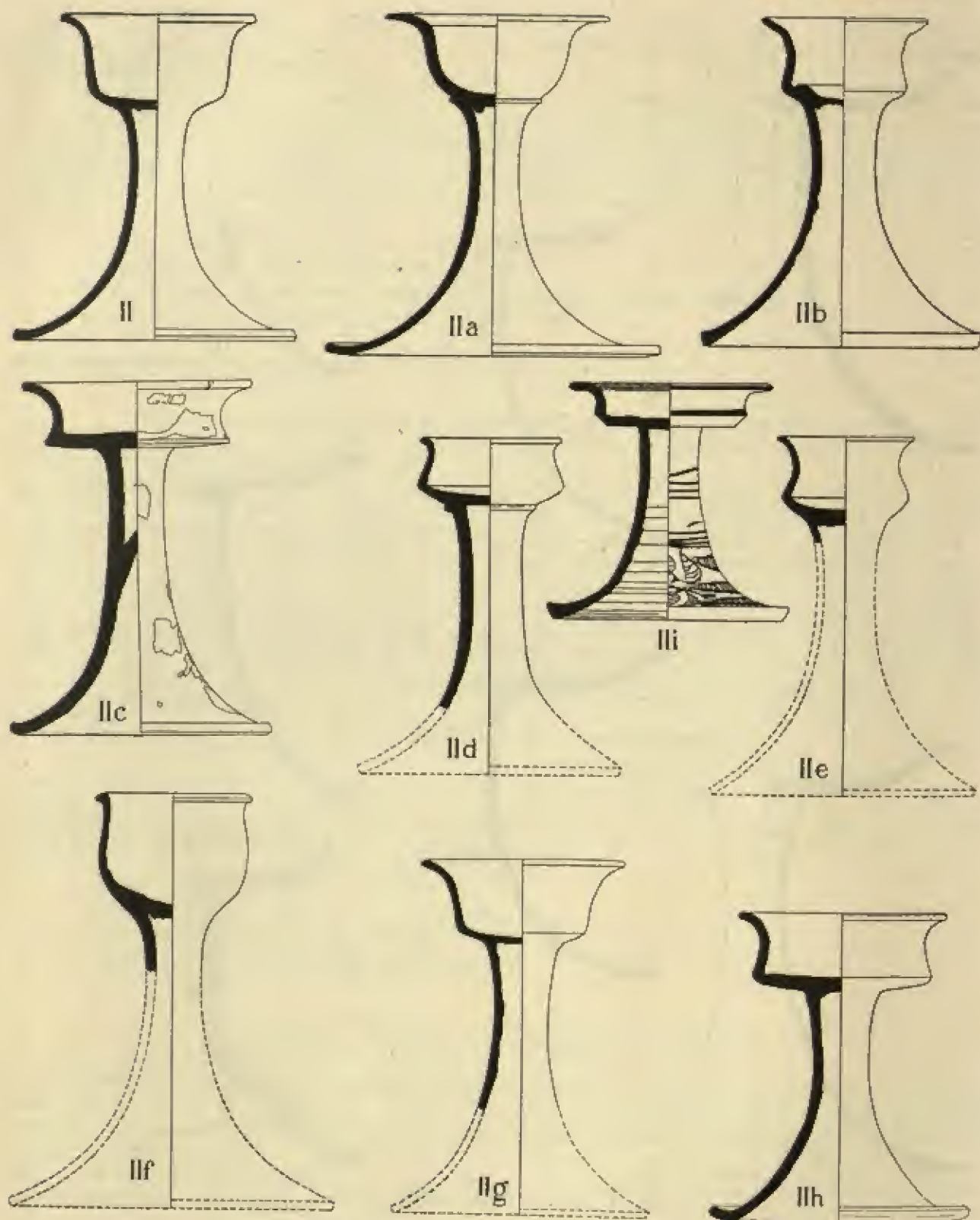


FIG. 12. Pottery from Cemetery R 37. $\frac{1}{8}$

of the habitation-areas and forms the bulk of the pottery from the débris overlying Cemetery R 37.

This pottery has nothing in common with the early pre-rampart wares from cutting HP XXX (above, p. 91) and, like the Cemetery R 37 pottery, belongs substantially to the mature Harappā culture.

(ii) Pottery from Cemetery R 37

In this section, all the pottery found in Cemetery R 37 from 1937 to 1946 is considered together. It represents the mature Harappā ceramic, and overlaps show that the types are contemporary with one another. They are for the most part plain and utilitarian in character, with more than a hint of mass-production. The clay used is usually coarse and not well-levigated. The ware is wheel-turned, well-baked, thick and sturdy, and has a pale red slip. Unlike the Cemetery H pottery, which is extensively and sometimes elaborately painted, the few painted specimens from R 37 (invariably in black paint) show a strong bias towards geometric and linear patterns, identical with those from the habitation-areas. A notable feature is the presence of a thick white slip of gypsum,¹ which flakes off easily on exposure. Most of the medium and small vases and especially the medium ledge-necked jars (Type R 37, IX) bear traces of paring and trimming with a sharp-edged instrument, and the dull white slip on the body is often combed horizontally. These rough horizontal combings give the effect of 'reserved slip', allowing the original body of the pot to show through with some sort of decorative effect.

The burial-pottery forms a large collection and shows a wide range of shapes and sizes, most of which are represented in the mounds and Area G at Harappā, although a few are new. Shapes not represented in the habitation-areas either at Mohenjo-daro or Harappā are vase-types V, VII, VIII, XII, XV, XIX and XXXV; cylindrical beaker-types XXVIII and XXIX; and casket-types XXXVI-XXXVIII. The absence of Types XII, XV, XIX and XXXV from the habitation-areas may not, however, be significant, as these types are extremely rare even in R 37. Type III which is found in great abundance in the habitation-areas, is rare in R 37 where it is devoid of the scored exterior which is a normal feature of this type. On the other hand Type II (cup-on-stand) is commoner in R 37 than

¹ The Chemist of the Archaeological Survey of India reports as follows:—

The white layer carries under it a reddish brown coating of a crystalline substance. The specimen of the white slip was prepared by carefully scraping off the lower film. The analysis is as follows:—

Insoluble (clay, sand, etc.)	..	0.46
CaO	..	32.70
SO ₃	..	46.65
Combined water	..	20.34

TOTAL .. 100.15

The amount of gypsum corresponding to 46.65% of sulphur trioxide is 100.3%. It is, therefore, clear that the white slip is composed of gypsum only. The analysis given above is in close agreement with the analysis of fairly pure gypsum.

The reddish brown coating was found to be free from nitrogenous matter and gave a negative test for gum and carbohydrates. It is, therefore, clear that no organic binding medium is present. A carefully prepared specimen of this substance showed transparent crystals under the microscope. On gentle ignition, the red colour disappears and the substance becomes opaque. Chemical analysis showed that the substance is gypsum containing a small amount of iron-oxide, which accounts for the colour. Some organic binding medium may have been originally present but apparently it has completely perished. The porous condition of the brown coating supports this view.

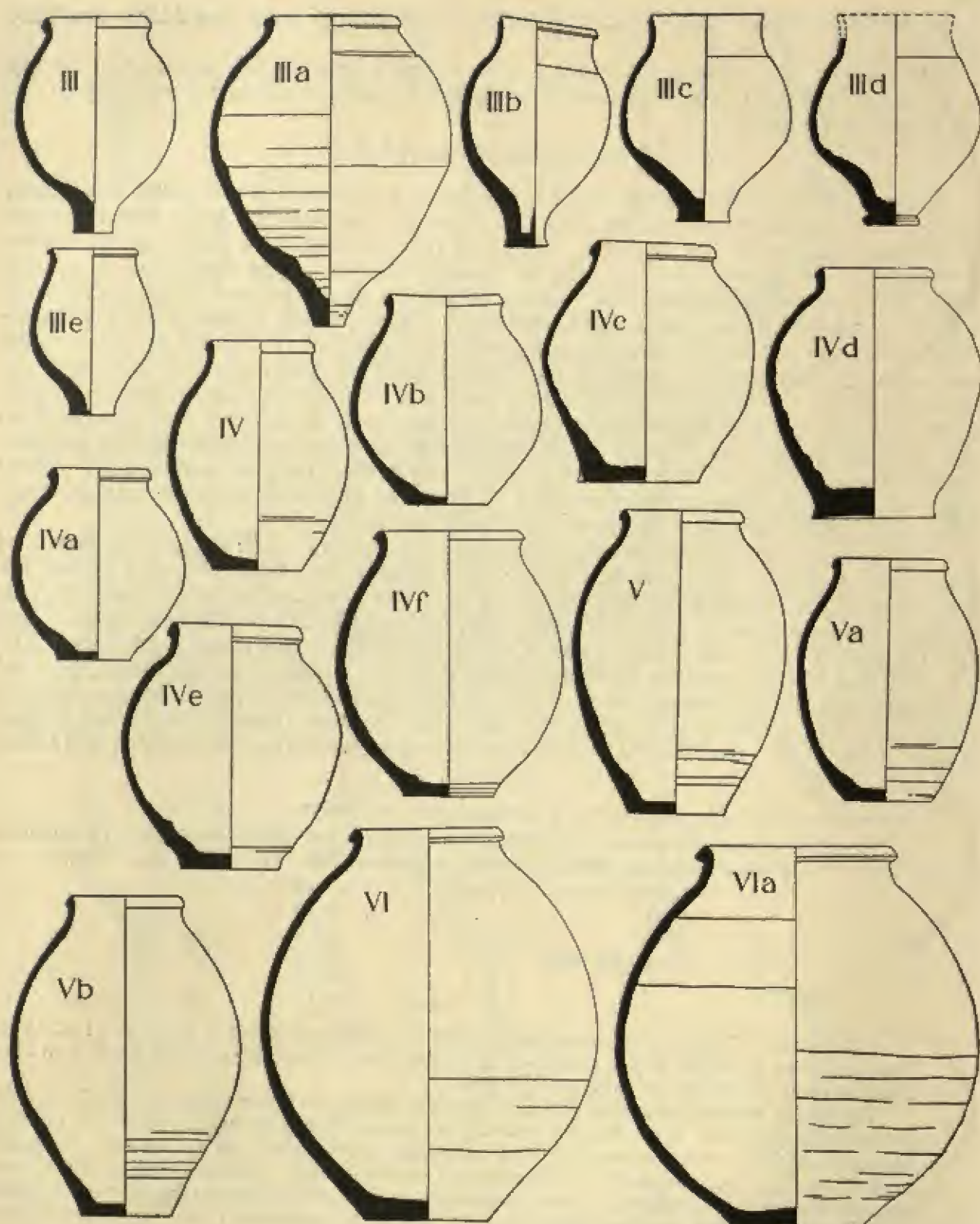


FIG. 13. Pottery from Cemetery R 37. 1

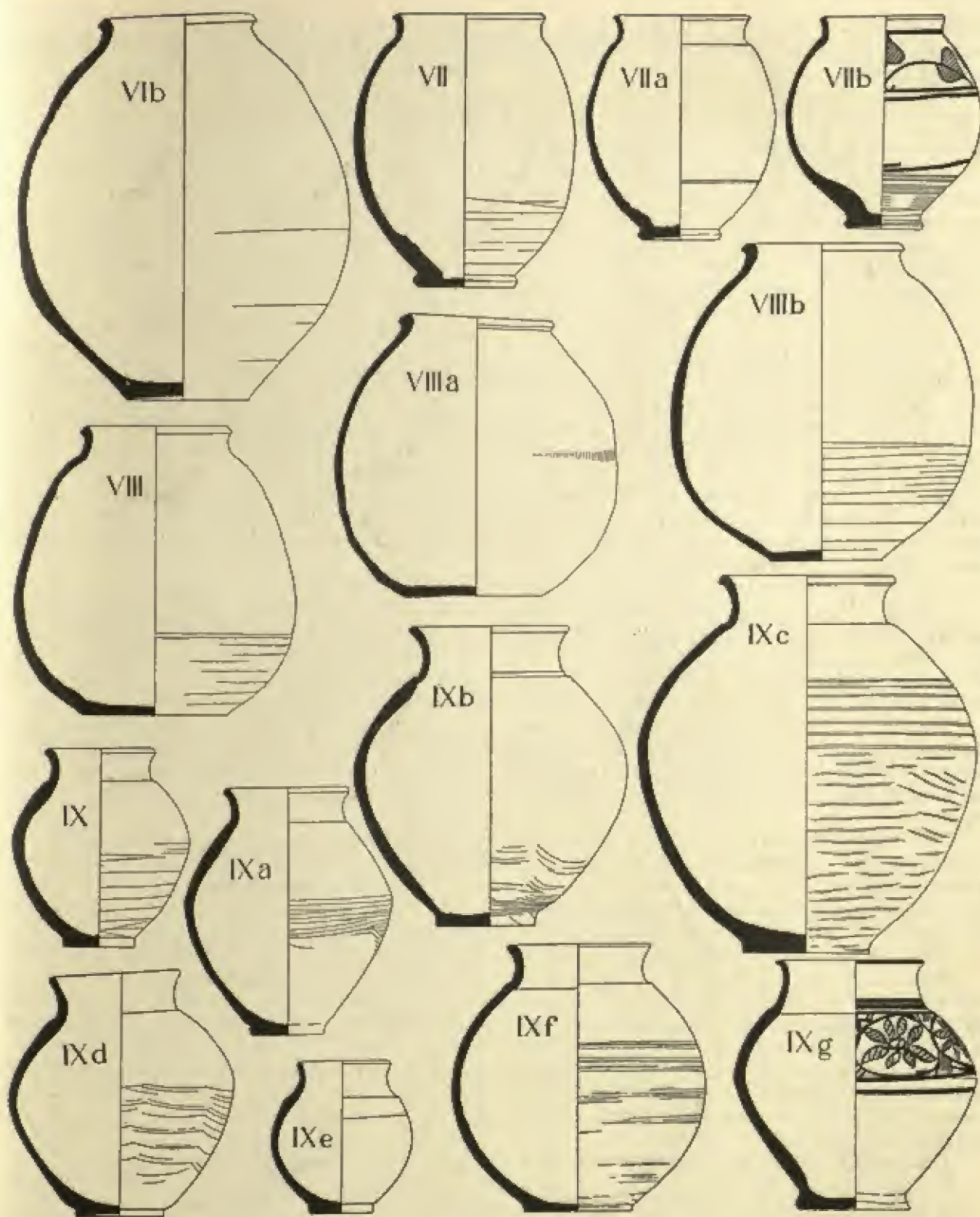


FIG. 14. *Pottery from Cemetery R 37.* $\frac{1}{4}$

in the habitation-areas. It may further be noted that some specialized shapes of R 37, such as Types XIII, XVII, XXVII, XXVIII and XLII, are present in Area G at Harappā but are either extremely rare on, or absent from, the habitation-areas.

The commonest types in order of frequency are Types XXX-XXXII, IX, XVII, XXVII, XXII, XVIII, IV, I, XXIII, XXVIII, XX, XIV, XIX, II, XI, XXXIII, XXI, XL. The following is a description in a serial order:—

Type R 37-I (Mackay Type A) is an offering-stand having a long plain stem with a broad base and a flat carinated dish. Variant Ia deviates from the type in having a curled-up edge to the base. Variant Ib has a less angular dish with smoother and thinner sides and stem. Variant Ic has a shallow dish with sharply angular sides and is decorated with a thick black line on the outside. Variant Id differs from the main type in that the dish has incised concentric circles on the interior. Variant Ie has a dish with widely flared mouth and incised concentric circles on the interior. Variant If is distinguished by a dish having slightly incurved sides, an internally beaded rim and a thicker stem.

This type with its variants is common in the habitation-areas both at Mohenjo-daro and Harappā.

Type R 37-II (Mackay Type A) is an offering-stand with a long plain stem crowned by a cup or bowl. The bowl is characterized by almost straight sides and a slightly flared mouth. Variant IIa has a more rounded bowl, a widely flared lip, and a ridge at the junction of the bowl and the stem. Variant IIb has a bowl with concave sides. Variant IIc has a bowl with pronouncedly concave sides and a flat base. It is unique in having a partition in the hollow stem and a coating of whitish paste. Variant IId has a carinated bowl with a pronounced ridge at the junction of the base with the stem. Variant IIf has a deep bowl with sharp carination. Variant IIg has a deep bowl with a short everted rim. Variant IIh differs from the principal type in having slightly carinated sides. Variant Iih generally resembles IIc in the shape of the bowl, but has a stunted stem. Variant III is unique in being painted with chains of loops on the interior of the flared rim and with conventional plant designs on the base (pl. XLVI, 2).

This type with its variants is rare in the habitation-areas of Mohenjo-daro and Harappā.

Type R 37-III (Mackay Types B and K)¹ is a goblet with a pointed base and with wheel-grooves both inside and outside. It is normally about six inches in height. Variant IIIa is larger and more pear-shaped and has a grooved shoulder. Variant IIIb is an elongated waster. Variant IIIc resembles the main type in height and general profile but has a thinner and less prominent rim and a slightly wider base. Variant IIId has a ledge on the neck and a beaded base. Variant IIIe is smaller in size than the archtype and has a wider foot.

These pointed goblets occur in abundance in the upper levels of the habitation-areas both at Mohenjo-daro and Harappā, and their usually rough and crude make, together with their abundance, indicates that they were the customary drinking-vessels of the period and were possibly thrown away after being used once. Those from the cemetery show a better make and are devoid of the scored exterior which is a common feature of the Harappā vessels.

Type R 37-IV (Mackay Type G) is a medium-sized oval jar distinguished by a beaded rim and a flat, sometimes slightly concave, base. It has traces of wheel-grooving both inside and outside. Variant IVa is squatter and smaller in size, with a restricted base, while variant IVb has a pronouncedly bulging profile. Variants IVc-d deviate from IVb in having a thickened base. Variant IVe has an emphatic bead-rim and is characterized by a ridge or cordon near the base, while variant IVf has an undeveloped rim.

This type with its variants occurs in the habitation-areas both at Mohenjo-daro and Harappā.

Type R 37-V is a barrel-shaped jar with bead-rim and flat base. The sides are wheel-grooved internally and externally. Traces of paring and trimming are evident on the lower exterior. Variant Va is smaller than the principal type and the wheel-grooves on the body are less prominent, while variant Vb has a wider bulge in the middle. A new type.

Type R 37-VI is a tall oval jar with a comparatively narrow mouth, very short neck and wide shoulders. It is characterized by a slightly everted or beaded rim and flat base. Variant VIa has a more bulging body, with traces of paring and trimming on the lower outer surface, while variant VIb is characterized by an everted rim and slightly concave base.

This type with its variants is represented in the habitation-areas at Mohenjo-daro and Harappā.

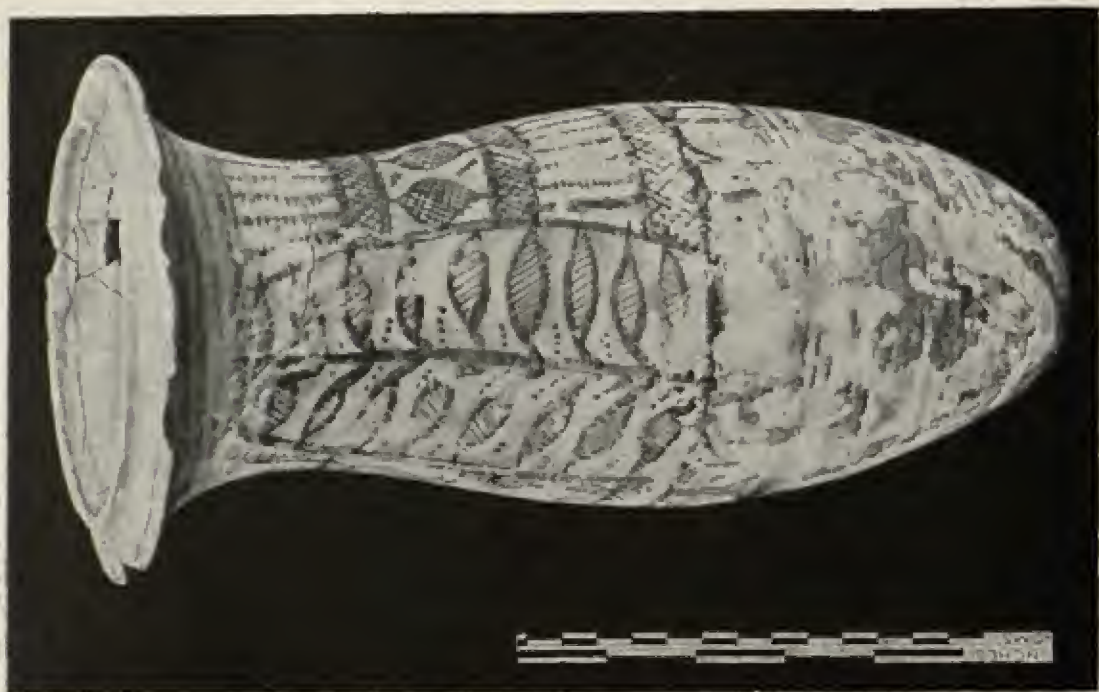
¹ The pointed goblet, so common in the habitation-areas at Harappā, is conspicuous by its absence from the intrusive Cemetery H culture.



Pottery from Cemetery R 37, types IXg, Ili, XLId, Xlf, XIIIa, VIIb, XIf and XIg
(Scale of inches)



A



B

Pottery from Cemetery R 37, types XLIIa and c
(Scale of inches)

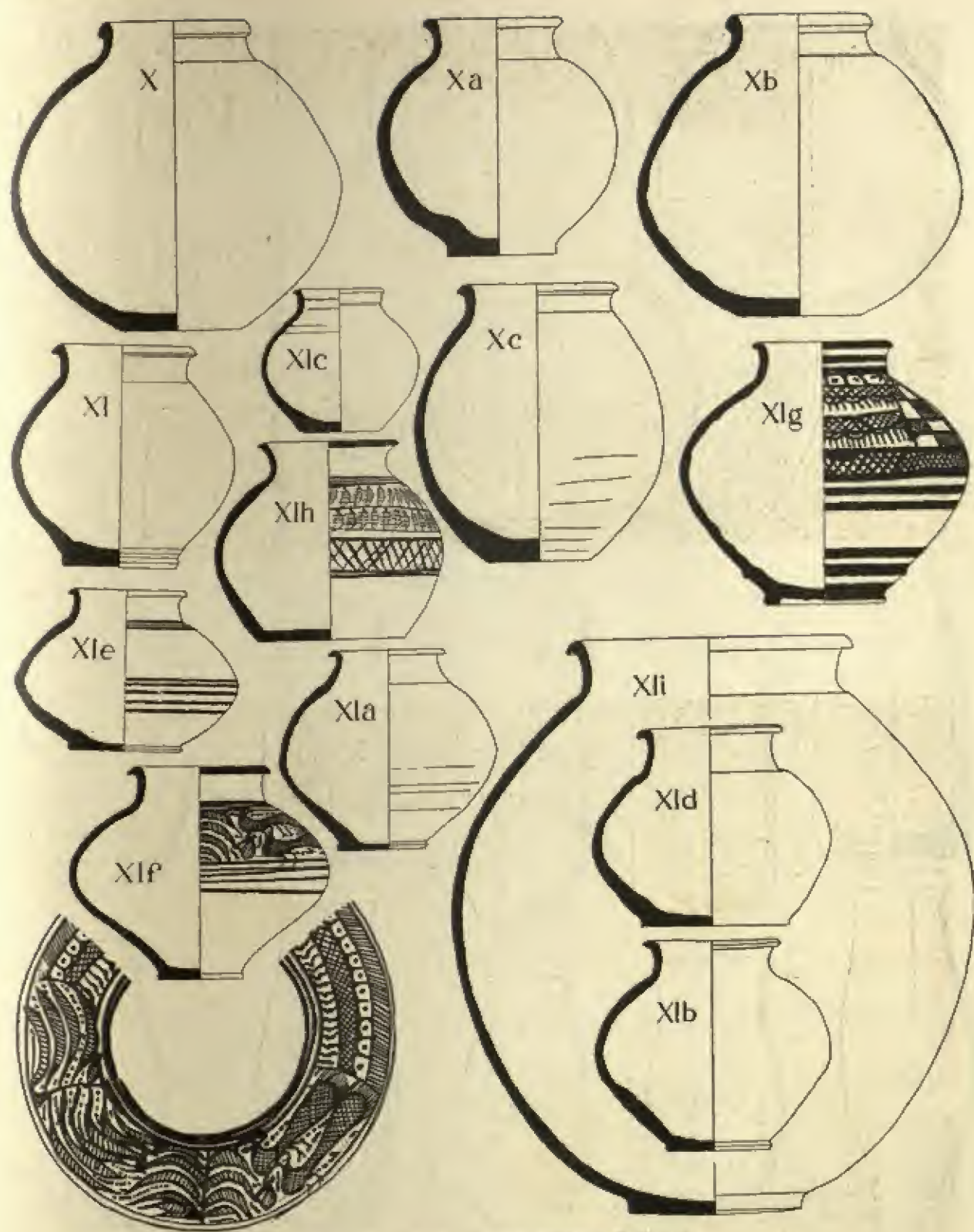


FIG. 15. Pottery from Cemetery R 37. $\frac{1}{4}$

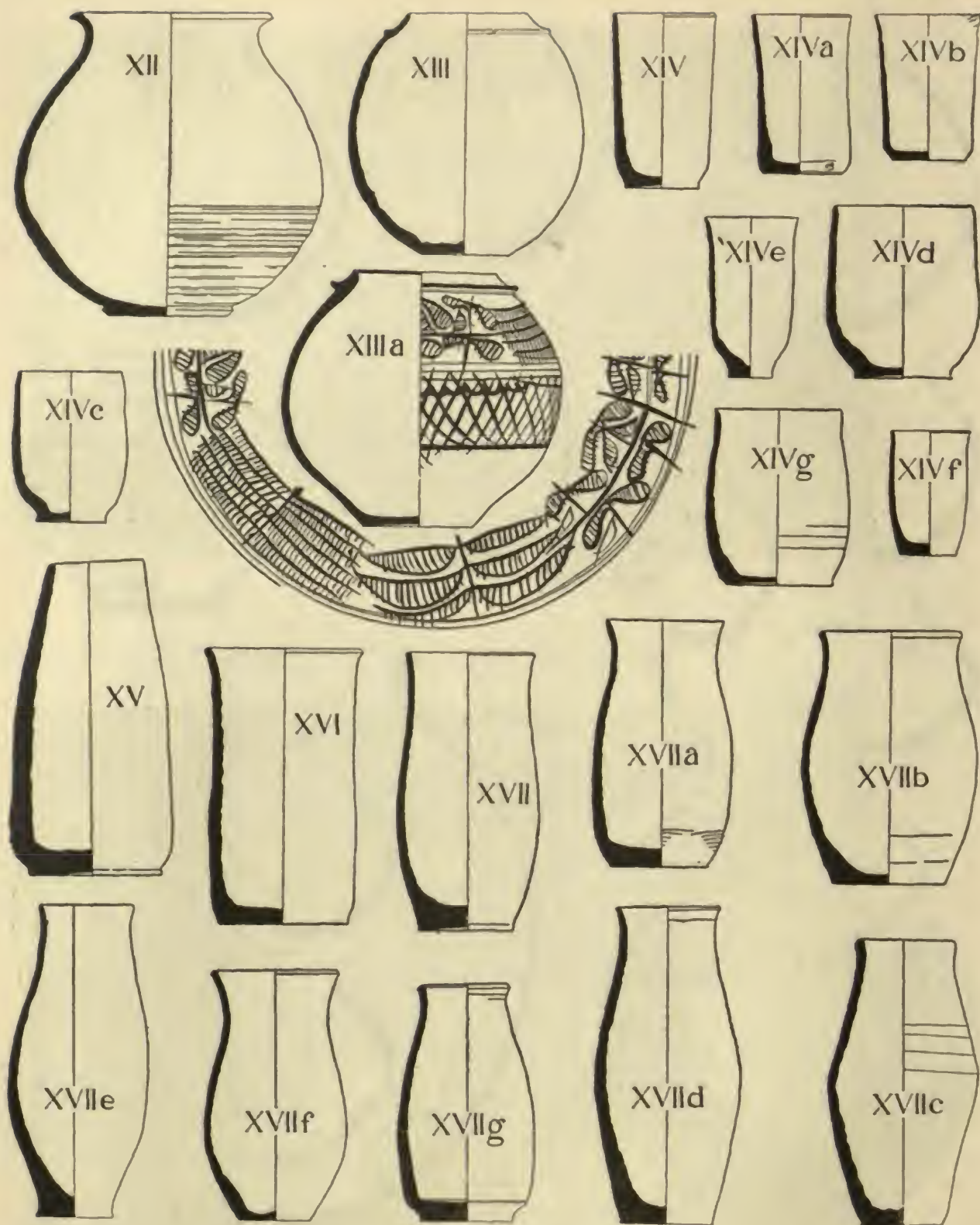


FIG. 16. Pottery from Cemetery R 37. ‡

Type R 37-VII is an oval jar marked by a beaded concave base, short neck and slightly everted rim. Its lower exterior is usually pared and trimmed with a sharp-edged tool. Variant *VIIa* is thinner and smaller, and variant *VIIb* is squatter, than the main type. The specimen of *VIIb* illustrated is unique in having a painted band in black of *pipal*-leaf pattern, which is the commonest of the Indus plant-motifs (pl. XLVI, 6). A new type.

Type R 37-VIII is a roughly potted ovoid vessel with short neck and wide flat base. Variant *VIIIa* has wider shoulders and no neck, while *VIIIb* has a restricted base. A new type.

Type R 37-IX (Mackay Type G) is a small oval jar characterized by a ledged shoulder, flat base and trimmed exterior. Variant *IXa* has a slightly carinated side with prominent scores round the middle, while *IXb-c* are progressively larger variants of the archtype. Variant *IXd* deviates from the type in having a slightly concave base. Variants *IXe-f* are marked by a pronounced ledge at the shoulder, while *IXg* has a beaded base and is painted in black with a series of circumscribed flowers in horizontal bands (pl. XLVI, 1).

This type is very common in the habitation-areas both at Mohenjo-daro and Harappā.

Type R 37-X (Mackay Type E) is a bulbous ledge-necked jar with a clubbed rim. Variant *Xa* is smaller and has a wider rim and thicker sides, incurved towards a thick flat base. Variant *Xb* deviates from the main type in having a wider bulge. Variant *Xc* is distinguished by a thick beaked rim, flat base and thick sides.

This type with its variants is common in the habitation-areas both at Mohenjo-daro and Harappā.

Type R 37-XI (Mackay Type E) is a ledge-necked bluntly carinated vessel with beaked rim and beaded base. Variant *XIa* has a voluted rim and internal wheel-grooves. Variant *XIb* has a straight beaked rim. Variant *XIc* is smaller in size with an inconspicuous beak. Variant *XId* is squatter and has a prominent everted rim and a wider base. Variant *XIe* is even squatter than *XId* and bears painted black bands round the neck and body. Variant *XIf* tapers considerably down towards a narrow beaded base and is unique in bearing a painted band consisting of peacocks, bipinnate leaf and mat-patterns (pl. XLVI, 4). Variant *XIg* is a unique pot with prominent ridge above a ring-base. It is decorated in black with two rows of dotted loop pattern with vertical pendants, chess-board and mat-designs and horizontal bands (pl. XLVI, 8). Variant *XIh* has a broad base and is unique in bearing roughly painted horizontal bands of trellis and conventional hatched leaf-patterns (pl. XLVI, 7). Variant *XIi* is a large jar with undercut rim and prominent base.

This type is common in the habitation-areas both at Mohenjo-daro and Harappā.

Type R 37-XII, one example, is a pear-shaped vessel with a flared lip and beaded base. It is grooved both internally and externally. The lower outer surface is sharply pared and bears traces of horizontal combing. A new type.

Type R 37-XIII, one example, is a globular vessel with a flange round the neck (evidently to receive a lid), a slightly concave base and internal wheel-grooves. Variant *XIIIa*, one example, has rounded sides, with its greatest width well below the middle of the body. It is characterized by an accentuated flange and is roughly painted in black with the conventional *pipal*-leaf, palm-frond, loop and mat-patterns (pl. XLVI, 5).

This type occurs in the habitation-areas at Harappā but not at Mohenjo-daro.

Type R 37-XIV (Mackay Types C and H) is a cylindrical beaker, smooth outside but wheel-grooved inside, and with a slightly concave base. Variant *XIVa* differs from the main type in having a slightly concave profile and flat base. Variant *XIVb* is thinner than *XIVa* and has a slightly flared rim and a base with trimmed edge. Variant *XIVc* is distinguished by restricted concave sides towards the base. Variant *XIVd* is squatter and broader than *XIVc*. Variant *XIVe* has a markedly restricted base, while *XIVf* tapers down towards the base. Variant *XIVg* is a broader vessel with a tendency to develop a neck.

This type with its variants is exceedingly common, especially in the upper levels, both at Mohenjo-daro and Harappā.

Type R 37-XV is a unique elongated cylindrical vase with a featureless rim and sides slightly tapering towards the mouth. It is characterized by thick, unsmoothed sides and a slightly concave base. Inside are prominent wheel-grooves. A new type.

Type R 37-XVI is a cylindrical vase with a slightly flaring lip and a wide flat base. Inside are prominent wheel-grooves. Analogues of this type occur occasionally both at Mohenjo-daro and Harappā.

Type R 37-XVII is a rimless elliptical vase with a flat or slightly concave base. The outer side is comparatively smooth but the inner side is heavily wheel-grooved. Variant *XVIIa* is characterized by a thick flat base and a slightly flared mouth. Variant *XVIIb* has a markedly bulging profile with a wider base, the diameter at the mouth being almost equal to that at the base. Variant *XVIIc* is biconical with a flat base. Variant *XVIId* differs from *XVIIc* in having a slightly flared rim. Variant *XVIIe* is marked by a pronouncedly restricted base. Variant *XVIIf* has a conspicuously flared rim. Variant *XVIIg* has sides tapering up towards the mouth.

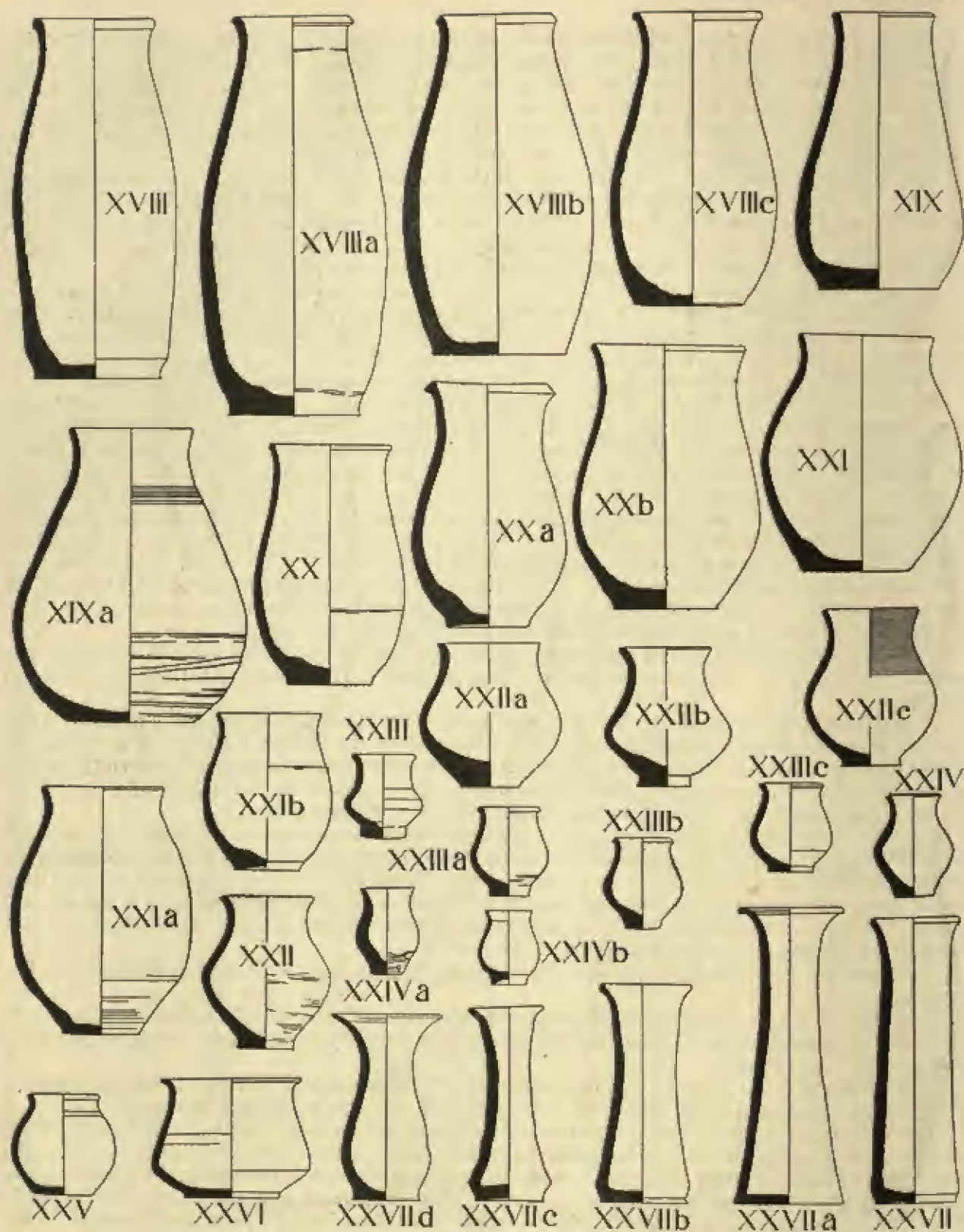


FIG. 17. Pottery from Cemetery R 37. $\frac{1}{4}$



FIG. 18. Pottery from Cemetery R 37. $\frac{1}{4}$

This type is rare at Mohenjo-daro and is represented only in area G at Harappā.

Type R 37-XVIII (Mackay Type Z) is an elongated bottle-shaped vase with bead-rim and sides slightly incurved towards a flat base; outside smooth, inside wheel-grooved. Variant XVIIIa has a bulging profile and an everted rim. Variant XVIIIb has a barrel-shaped body and lacks the inner wheel-grooves of the archtype. Variant XVIIIc is smaller and has a less abrupt restriction towards the base.

This type with its variants is rare at Mohenjo-daro and Harappā, occurring only in the late occupation-levels.

Type R 37-XIX is a long pear-shaped vase with an unemphatic bead-rim and a wide flat base. The inner side has prominent wheel-grooves. Variant XIXa is unique in having a pronouncedly bulging profile and a multi-grooved shoulder. The lower exterior of the vase has been trimmed by a sharp instrument. A new type.

Type R 37-XX (Mackay Type C) is a medium-sized vase with convex profile, slightly flared mouth and sides incurving towards a flat base. This type resembles in general profile the vessel used on the Persian water-wheel, widely prevalent today in the Punjab and Sind. Variant XXa deviates from the archtype in having a beaked rim, thicker walls and a concave base. Variant XXb is broader than the main type.

This type with its variants is common in the habitation-areas both at Mohenjo-daro and Harappā.

Type R 37-XXI is a *loṣā*-shaped vase with a slightly flaring rim and flat base. Variant XXIa has an elongated profile which is restricted towards the base. Variant XXIb is smaller and deviates from the main type in having a concave base.

This type with its variants is present in the habitation-areas both at Mohenjo-daro and Harappā.

Type R 37-XXII (Mackay Type G) is a small vase with spreading mouth and somewhat emphatic base. This type was almost invariably trimmed with an edged instrument, sometimes as high as the middle of the body but usually on the lower portion only. The presence of a dull white slip is very often noticeable, generally below the shoulder. Variant XXIIa deviates from the main type in having a more generalized form and a thicker base. Variant XXIIb has a bulging girth and a pronounced base. Variant XXIIc is distinguished by a series of regular horizontal combings, which allow the body of the ware to show through the coating of white slip.

This type with its variants is very common in the habitation-areas both at Mohenjo-daro and Harappā.

Type R 37-XXIII (Mackay Type G) is a bell-shaped miniature vase with a flat band round the middle of the body and a thick flat base. The lower portion of the body shows traces of paring and trimming. Variant XXIIIa has a voluted rim, while XXIIIb has a beaked one. Variant XXIIIc has a beaded rim.

This type with its variants is common in the habitation-areas both at Mohenjo-daro and Harappā.

Type R 37-XXIV (Mackay Type G) is a miniature vase with a flared rim and thick flat base. Variant XXIVa has a featureless rim and thick walls, with traces of heavy paring. Variant XXIVb is characterized by thin walls and a pronouncedly concave base.

This type with its variants is common in the habitation-areas both at Mohenjo-daro and Harappā.

Type R 37-XXV, one example, is a miniature vase with rounded sides, a bead-rim, grooved shoulder and wide flat base. Analogues of this type with a narrower base occur occasionally both at Mohenjo-daro and Harappā.

Type R 37-XXVI, one example, is a squat carinated vase with flared lip and beaded base. This type is rare in the habitation-areas at Mohenjo-daro and Harappā.

Type R 37-XXVII (Mackay Type C) is a tall, slender cylindrical vase with a flat or slightly concave base and a slightly flared rim. The sides are fairly smooth and tapering towards the mouth. Variant XXVIIa deviates from the main type in having a widely flared mouth and an elongated base. Variant XXVIIb is characterized by concave sides with a sharp carination near the base and a greater flare of the lip. Variant XXVIIc deviates from XXVIIb in being attenuated in the middle. Variant XXVIIId differs from the principal type in having a graceful concave profile with a slight bulge towards the base.

This type with its variants is not represented at Mohenjo-daro and occurs only in Area G at Harappā.

Type R 37-XXVIII is an elliptical vase with a graceful convex profile, a flared mouth and a hollow pedestal-base. Variant XXVIIIa has a more flared mouth than the main type, while XXVIIIb has a bulged profile. Variant XXVIIIc deviates from XXVIIIb in having a taller pedestal. Variant XXVIIId has a pronouncedly convex profile and is unique in being beaded at the junction of the body and the pedestal. Variant XXVIIIf is broader and has a beaded and flared rim. Variant XXVIIIf is the only example of a rimless, footed, elliptical vase.

This type with its variants is not represented at Mohenjo-daro and occurs only in Area G at Harappā.

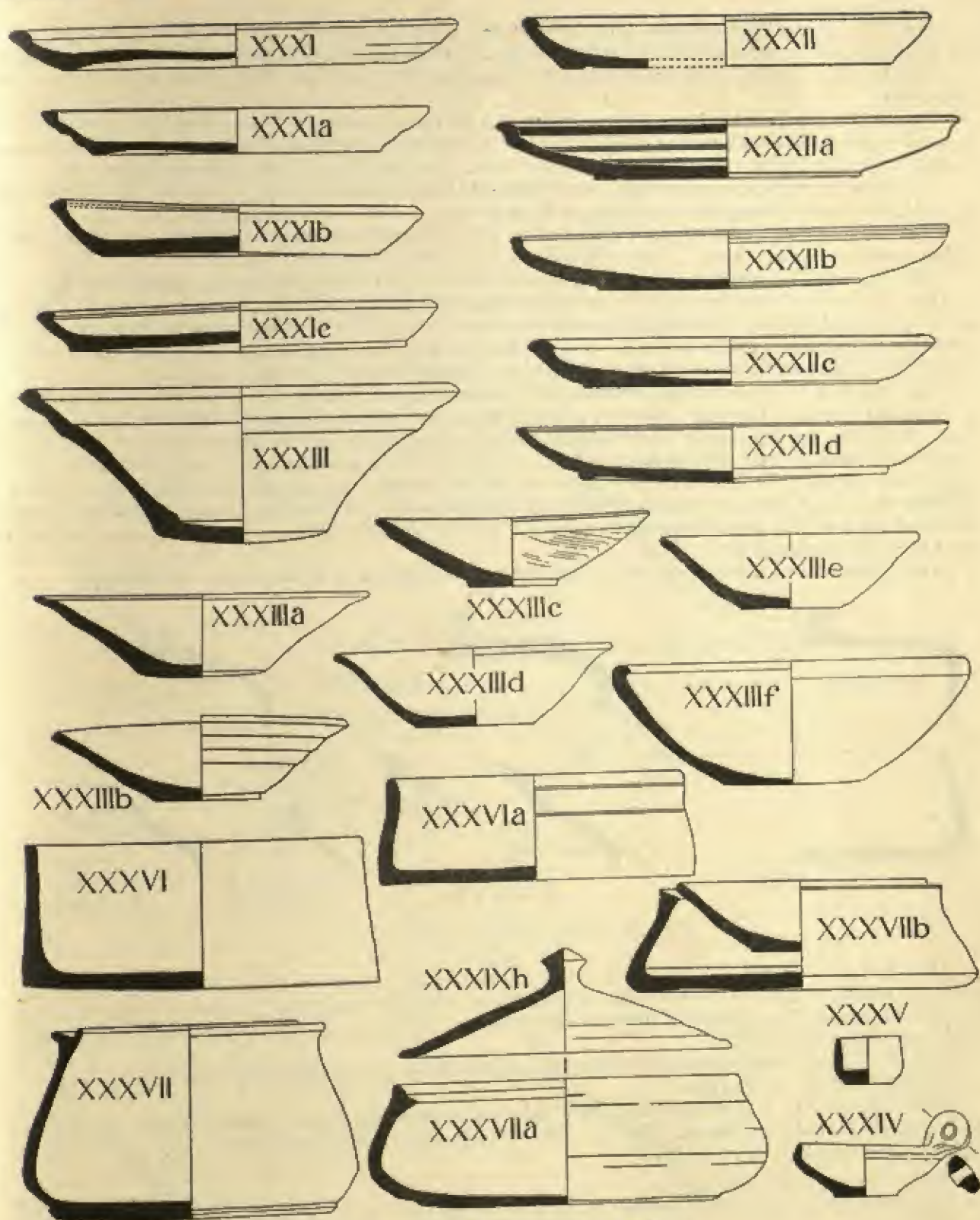


FIG. 19. Pottery from Cemetery R 37. †

Type R 37-XXIX is an elongated elliptical vase with a slightly splayed mouth and a short pedestal-base. Variant XXIXa has a rolled rim, while variant XXIXb has a more flared rim. Variant XXIXc is distinguished by a beaded rim. Variant XXIXd is smaller and thinner than the main type, while XXIXe is markedly squat. A new type.

Type R 37-XXX (Mackay Type W) is a shallow dish with an incurved rim. Metal dishes of similar shape are used today in India for kneading dough.¹ Variant XXXa has prominent external grooves towards the base. Variant XXXb has a thick rim and a slightly rounded base. Variant XXXc has an internally clubbed rim.

This type far outnumbers every other type of pottery found in Cemetery R 37 and is also very common in the habitation-areas at Harappā, though rare at Mohenjo-daro.

Type R 37-XXXI (Mackay Type W) is a shallow dish with thick internally beaded rim, corrugated sides and pronouncedly concave base. Variants XXXIa, b and c differ in the shape of the rim.

This type with its variants is common in the habitation-areas at Harappā, but rare at Mohenjo-daro.

Type R 37-XXXII (Mackay Type W) is a shallow dish with a beaded rim and a disc-base. Variant XXXIIa has an out-turned rim and an unemphatic carination round the neck. It is unique in being decorated on the interior with concentric circles in black. Variant XXXIIb has an inconspicuously out-turned rim. Variant XXXIIc has a hammer-head rim. Variant XXXIIId has a slightly inturned rim and a ring-base.

This type with its variants is quite common in the habitation-areas at Harappā, but is rare at Mohenjo-daro.

Type R 37-XXXIII (Mackay Type V) is a deep bowl or cover with an internally beaded rim and a sagger-base. Below the rim is a slightly raised band, marking the junction between the upper and lower parts of the vessel, which seem to have been made separately. Variant XXXIIIa is marked by a widely flared rim and a sagger-base. Variant XXXIIIb is roughly made with an oblique-edged rim and external corrugations. Variant XXXIIIc has a ridged neck and tapering profile with traces of paring and trimming. Variant XXXIIId is better made and has a slightly concave profile. Variant XXXIIIe is a roughly made rimless bowl. Variant XXXIIIf has a rim with an internal beak.

This type with its variants is common in the habitation-areas both at Mohenjo-daro and Harappā.

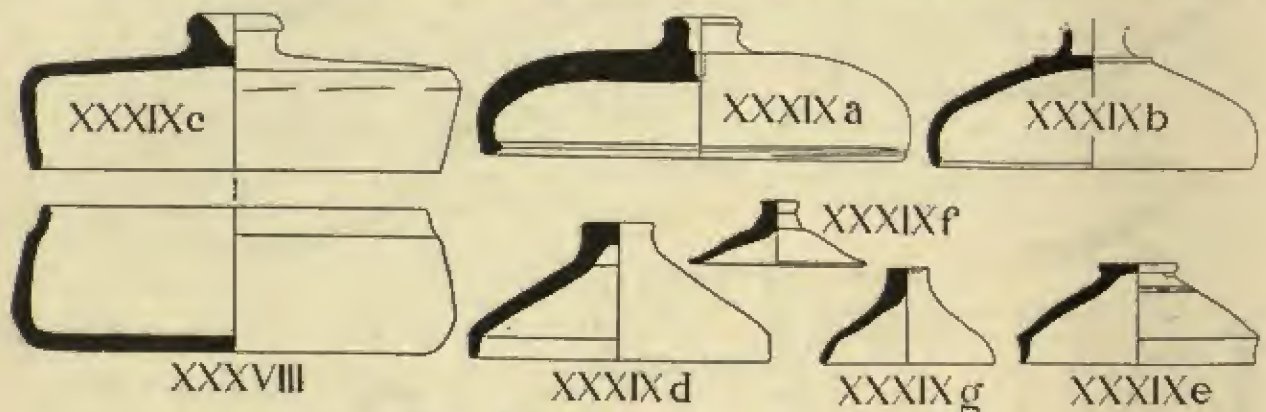


FIG. 20. Pottery from Cemetery R 37. 1

Type R 37-XXXIV (Mackay Type AC), one example, is a cup or lamp (no traces of burning) with a thin perforated ear-like handle. This type is the only instance of a handled vessel from Harappā. Mackay (*Chanhu-daro Excavations*, p. 82) suggests that these vessels were ladles. They are common in the habitation-areas both at Mohenjo-daro and Harappā.

Type R 37-XXXV, one example, is a featureless miniature bowl with straight sides, a flat horizontal rim and a wide thick flat base. A new type.

Type R 37-XXXVI is a casket with straight sides and a broad flat base. Variant XXXVIa has grooved sides tapering towards the mouth. This is a new type, though an analogue occurs in the lower levels at Mohenjo-daro (Mackay, II, pl. LXIV, 1).

¹ A clay figure of a woman kneading dough in a pan has been found at Harappā. Vats, II, pl. LXXVI, fig. 23.

Type R 37-XXXVII has an externally flanged rim to receive a lid and an emphatic base. Vessels of this type are often found intact with the lid as in variant XXXVIIa, a single example, with an internally flanged rim, which was found covered with lid Type XXXIXh. This variant bears traces of a white slip. Variant XXXVIIb may be classified as a developed variant of this type; it was closed, as shown, by a rough dish or lid of Type XXXVIIIe. A new type.

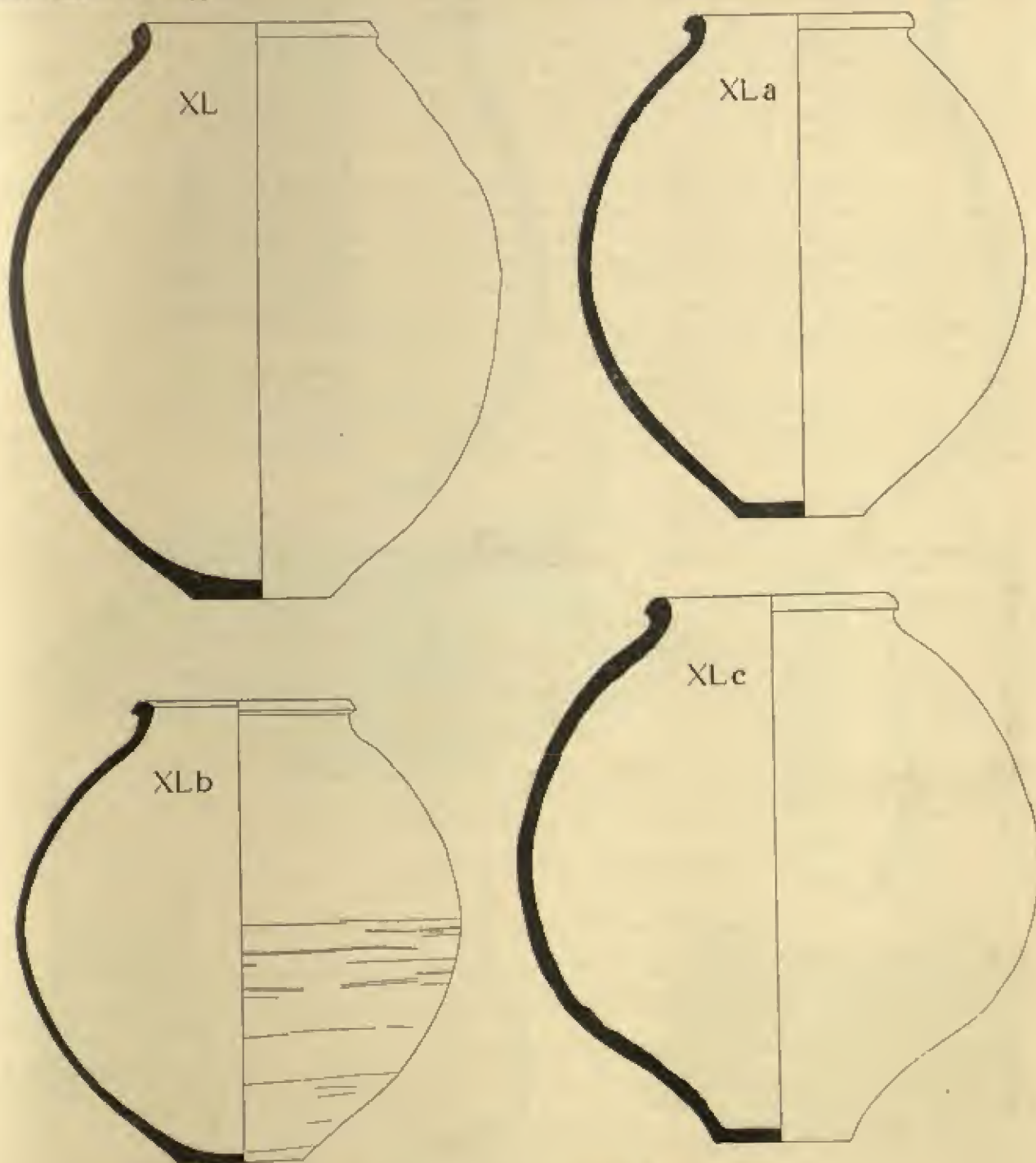


FIG. 21. Pottery from Cemetery R 37. $\frac{1}{2}$



FIG. 22. Pottery from Cemetery R 37. $\frac{1}{2}$

Type R 37-XXXVIII has a recessed flange at the neck to receive a lid of Type XXXIXc. A new type.

Type R 37-XXXIX (Mackay Type X) is a lid with an externally hollow knob-handle. The specimen illustrated is painted with horizontal black bands (fig. 23). It was found in position on the painted storage-jar, Type XLII. Variants XXXIXa, b and c have also externally hollow knobs. Variant XXXIXc was found fitted on to Type XXXVIII. Variants XXXIXd-e have internally hollow knobs. Variants XXXIXf-h have solid knobs, the last variant covering a vessel of Type XXXVIIa.

This type with its variants is common in the habitation-areas both at Mohenjo-daro and Harappā.

Type R 37-XL (Mackay Type AS) is an oval storage-jar with a thick clubbed rim. The thin white slip, which is characteristic of these pots, has in most cases been partially removed by a comb-like tool to allow the red body-colour of the pot to show through. Variant XLa has a beaded rim. Variant XLb has a bluntly beaked rim and traces of paring and trimming on the lower exterior. Variant XLc has a concave profile above the base.

This type and its variants are common on the habitation-sites of Harappā and Mohenjo-daro.

Type R 37-XLI (Mackay Type AS) is a tall storage jar with a prominent flange for a lid and a comparatively narrow base, possibly implying the normal use of a pottery stand. Variant XLIIa is painted in black on a pale red slip with intricate geometric patterns of intersecting circles; roundels, cross-hatched or with a dot; *pipal*-leaf; palm-frond; and peacock (pl. XLVII A).¹ Variant XLIIb is squat with a pronouncedly flanged rim and slightly concave base, and bears traces of paring on the lower exterior. Variant XLIIc is a unique slender vase, painted in black on a pale red slip with bipinnate leaves, date-palm, *pipal*-leaf and matted patterns (pl. XLVII B). Variant XLII d is a squat vessel, painted in black with bipinnate leaves and bands of wavy lines (pl. XLVI, 3).

This type is common on the habitation-sites at Harappā and Mohenjo-daro.

Type R 37-XLII is a large bulbous jar with a flange round the neck. The largest example is painted in black on a dull red slip with *pipal*-leaves, conventionalized palm-frond and other plant-forms, but most of the painting has disappeared. It was found covered with the painted lid of Type XXXIX. Variant XLIIa is less bulbous than the main type.

This type does not occur at Mohenjo-daro but is present in Area G at Harappā (Vats, II, pl. LXX, 16).

Type R 37-XLIII (Mackay Type AS) is a storage-jar with flanged rim, slender foot and beaded base. It is decorated with a series of black bands on the outside and two on the inside. This type occurs in the habitation-areas both at Harappā and Mohenjo-daro.

Type R 37-XLIV (Mackay Type AF), one example, is a tall cylindrical perforated vessel with an everted rim and a large circular hole in the centre of the base. It is characterized by two prominent grooves round the neck. Sir Aurel Stein found a complete specimen of this type at Firoz Khān-damb in Awārān, Makrān,² filled with charcoal and ashes, which presumably indicates that these vessels were used as heaters or braziers.³ The holes round the body have a ragged or blurred edging, made by pushing a stick through the sides while the clay was still wet. Only a single example was found in R 37, though this type in various sizes is common in the habitation-areas both at Harappā and Mohenjo-daro.

Type R 37-XLV (Mackay Type AE) is a jar-stand with a concave profile. Variants XLVa and b differ from the principal type mainly in the shape of their rims. Variant XLVc is smaller in size and is characterized by its angular profile. Variant XLVd is unique in being decorated by several plain black bands outside and two bands inside.

This type with its variants is common in the habitation-areas both at Mohenjo-daro and Harappā.

(iii) Pottery from layers immediately sealing Cemetery R 37

The layers immediately overlying Cemetery R 37, as excavated in 1946, yielded a fair number of sherds, mostly plain but some painted with simple black horizontal bands—

¹ Outside the Indus valley, the peacock does not occur on prehistoric pottery, doubtless because it is a native of India and was at that time unknown elsewhere. The peacocks on the pot-burials of Cemetery H, Stratum I, have religious associations.

² Aurel Stein, *Mem. Arch. Surv. Ind.*, No. 43 (1931), pp. 64, 130.

³ These objects have recently been compared plausibly to the ritual-vessels that are used by devotees in Madras at the present day for burning camphor. Mackay, *Chanhudaro Excavations*, p. 83, and A. Aiyappan, 'Pottery Braziers of Mohenjo-daro', *Man*, 1939, No. 65.

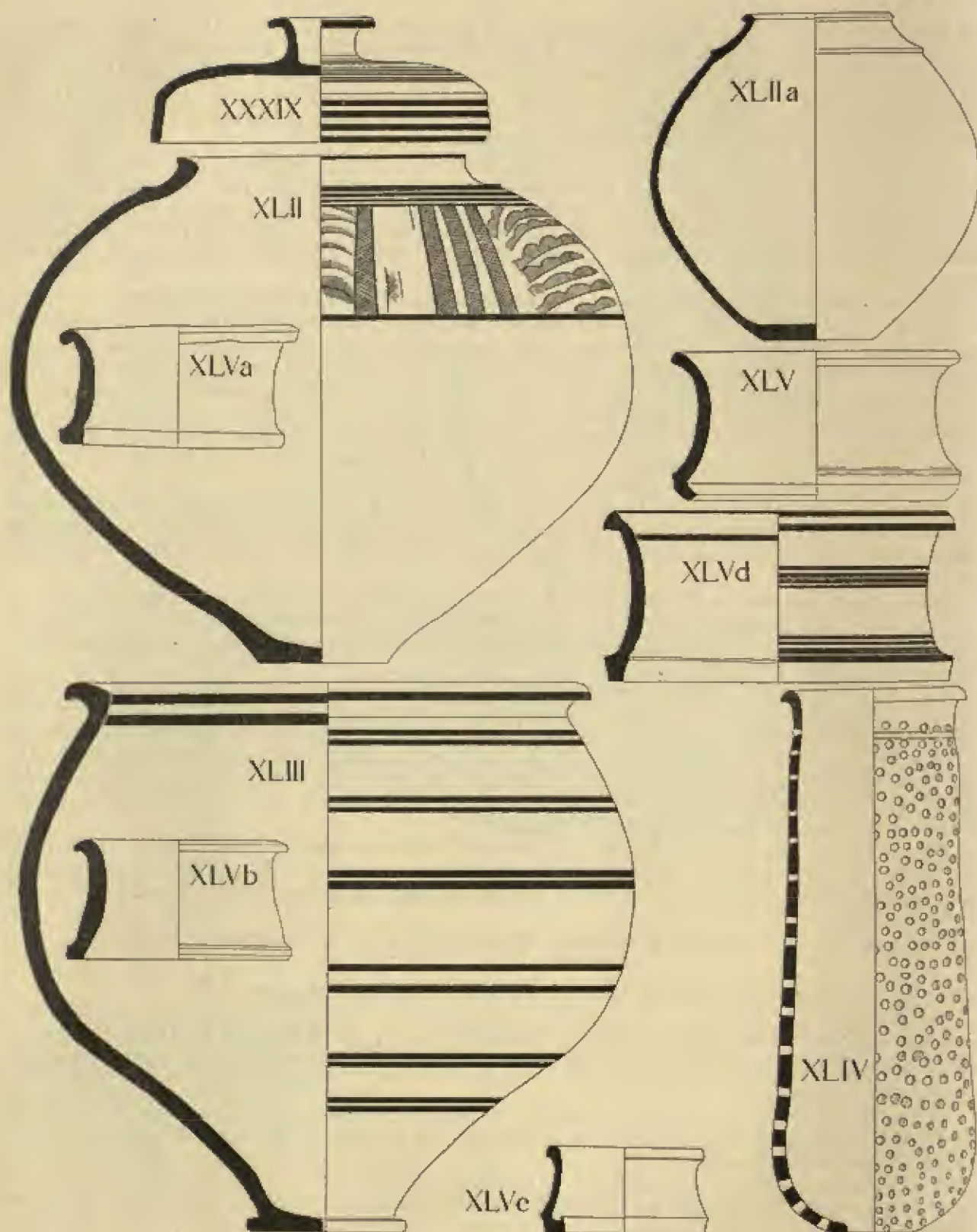


FIG. 23. Pottery from Cemetery R 37.

all belonging to the true Harappā culture. Together with types common to the habitation-areas and Cemetery R 37 (R 37 Types I, IV, VI, IXc and XL), these also include shapes which are absent from R 37 but are characteristic of the main body of the mounds; such as Mackay Types B, C and S, miniature offering-stand (Type A—Mackay, II, pl. LV, 2) and basin (Type W, Mackay, II, pl. LVI, 50).

(iv) *Pottery from the débris-layer (later than Cemetery R 37 and earlier than Cemetery H)*

The extensive group of pottery from the débris-layer (pl. XXXIX, layer 5) represents almost all types found in the main body of the mounds, together with a few sherds typical of Cemetery H, Strata I and II.

The pottery is all wheel-turned, coarse in fabric (the clay being not well-levigated), well-fired¹ and drab or pale red in colour. The paintings are in black on a dull red slip. The decorative designs show a preference for geometric and linear patterns exemplified by interlacing circles, squares with concave sides, grid and fish-scale patterns; though simple plant-motifs, sometimes placed in metopes or panels, alternating with other designs, are occasionally found.

The few grey sherds recovered from the débris-layers are accidental, due to firing in a smoky kiln. No grey-ware culture has been noticed in any of the occupation-periods at Harappā or Mohenjo-daro. The goblets with pointed bases (Mackay Type B) preponderate largely over all other vessels.² The other notable types, in order of frequency, are medium-sized cylindrical vases³ (Mackay Types C and H), round or oval jars with a projecting rib or beading at the shoulder and neck (Mackay Type F), and dishes with incurving or splayed rim (Mackay Type W).

Eleven samples from these layers are selected for illustration (fig. 24):—

1. Goblet with pointed base and scored exterior. This type, characteristic of the Harappā culture, was most prolific here.

2. A bowl with horizontal bands painted on the exterior, the black paint having 'run' at two places. Bowls like these were used as covers of the pot-burials of Cemetery H, Stratum I.

3. Base of a grey-ware cup-on-stand with a corrugated stem. Restored from Vats, II, pl. LXXII, 11.

4. Squat cup-on-stand, painted on the interior with loop, conventionalized leaf and floral patterns. Cup-on-stands of identical shape and decoration are characteristic of Cemetery H, Stratum II (Vats, II, pl. LVII, (d) 2).

5. A globular vessel with an undercut rim, grooved shoulder and restricted base. This type occurs in the habitation-areas at Harappā and Mohenjo-daro.

6. A small carinated beaker with flared mouth, painted with horizontal bands on the exterior. Analogues of this type occur occasionally in the habitation-areas at Harappā and Mohenjo-daro.

7. A small grey-ware vessel with rounded base and flaring mouth. Analogues of this type occur occasionally both at Harappā and Mohenjo-daro.

8. A narrow-mouthed oil-flask with wide girth and beaded base. This type is common in the habitation-areas both at Harappā and Mohenjo-daro.

9. A sherd painted with fish-scale pattern. This design is of common occurrence on the habitation-sites both at Harappā and Mohenjo-daro.

10. Fragment of a ribbed pot.

11. Rim-fragment of a bowl, painted on the exterior with a motif resembling a tortoise.

¹ Very few instances of imperfect firing were noticed.

² The fact that these are turned up in thousands suggests that it may have been a practice with the Harappans, as it is still with the Hindus, to throw away the cup from which they had once drunk. Unless some such practice as this obtained at Mohenjo-daro and Harappā, it is difficult to account for the vast numbers of these vessels.

³ A very common type on the mounds, evidently a staple product of the potter.

(v) Pottery from Cemetery H, Stratum I

Cemetery H consists of two strata, the upper (Stratum I) characterized by fractional pot-burials and the lower (Stratum II) by extended inhumations (see p. 84). Only a small portion of Stratum I, comprising three pot-burials, was exposed in 1946. Though the two strata are distinguished by a marked difference of burial-customs and an apparent divergence of pottery-types, a community of technique and pattern enable us to regard them as successive

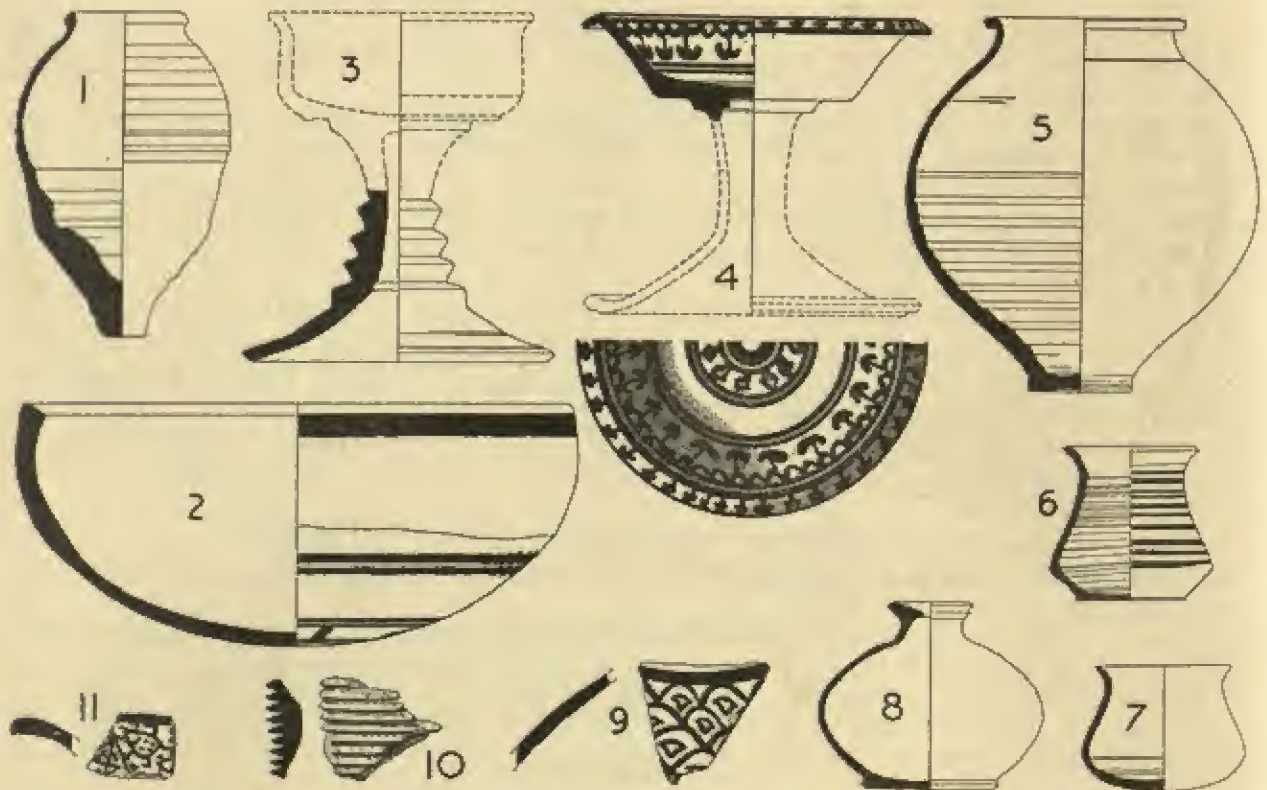


FIG. 24. Pottery from the *débris*-layers intervening between Cemeteries R 37 and H. $\frac{1}{4}$

phases of the same culture. The difference in the ceramic shapes of the two strata of the cemetery is functional rather than cultural, in that the large pots of Stratum I were meant to contain the actual burials, whereas the pottery of Stratum II served only as grave-furniture. The ware in both is burnt deep red and has a notably bright-red slip. The painted designs in jet black are often slightly blurred at the edges, as though they had 'run' on a wet ground. The majority of the characteristic patterns, such as star, fish, peacock, ox and goat, are common to both the strata. Stratum I shows larger groups of these with obviously mythological significance, while on the smaller vessels of Stratum II the designs seem for the most part to be purely decorative; but this difference may reasonably be ascribed to difference of size and function.

The pottery as a whole from Cemetery H is essentially alien in type, technique and decoration to that of the true Harappā culture. Its distribution is at present unknown, but it has been identified also at Lurewāta and Ratha Thēri in Bahāwalpur State. Its fabric has a finer texture and a darker red tone both in the core and in the slip. Its decorative motifs do not include the intersecting-circle, scale and other patterns,

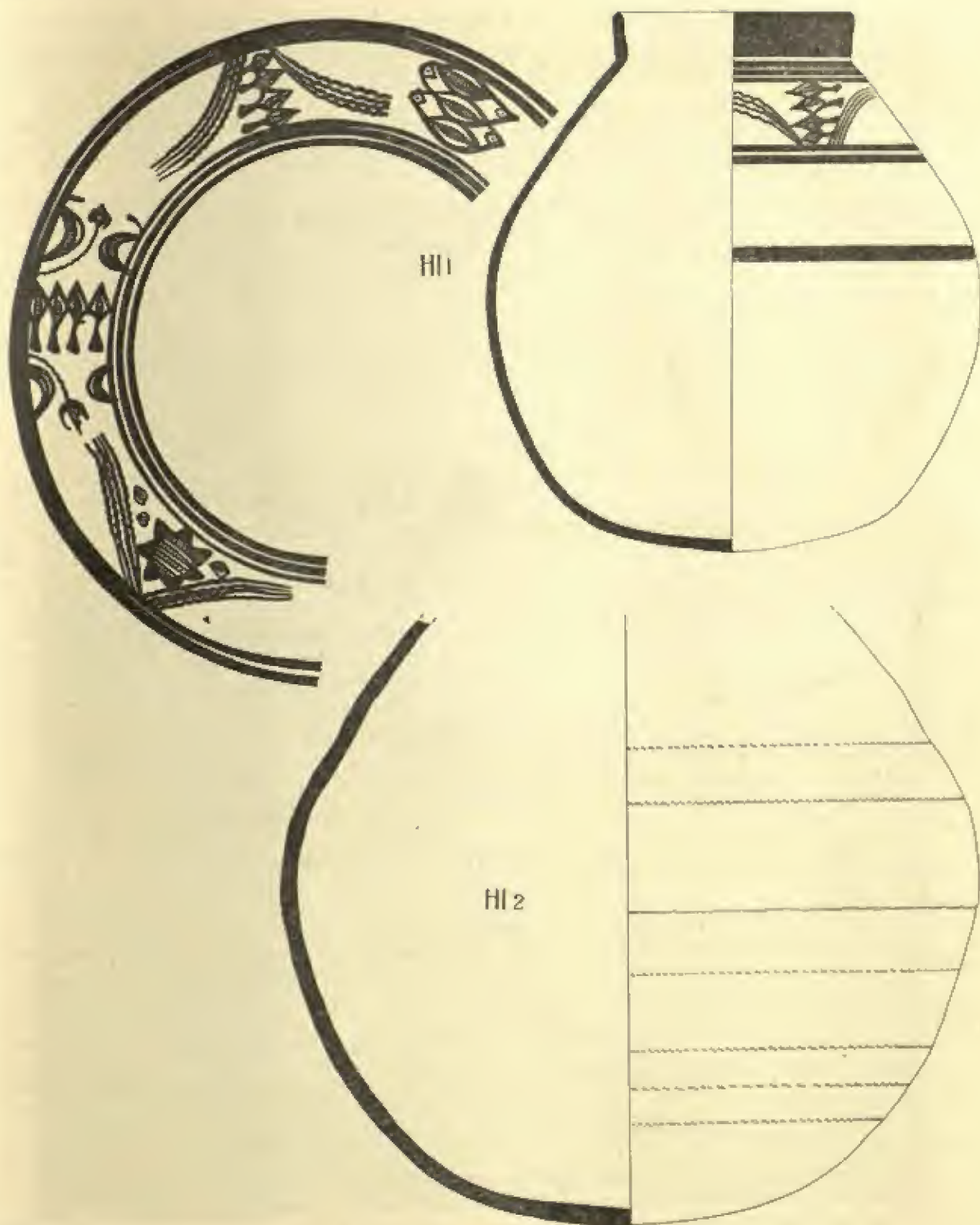


FIG. 25. Pottery from Cemetery H, Stratum I. $\frac{1}{2}$

characteristic of the Harappā culture, and the blurred outline is equally foreign to the latter. These facts, combined with structural evidence noted above (p. 74) and the thick deposit intervening between Cemeteries R 37 and H, firmly indicate a time-interval between the two cultures.

The commonest types of Cemetery H, Stratum I, are large ovoid jars with or without a flange round the rim to receive a lid; and pots with 'finger-tip' and 'finger-groove' patterns.

The following pot-burials were exposed in 1946:—

Pot-Burial No. 11 (fig. 25, 1). An ellipsoid jar with a short straight rim. It is painted successively with four fish between conventional streams of water, four fish between groups of vegetation, a star or sun between streams of water, and a group of two (or four) fish. (For the bones contained by the jar, see above, p. 89.)

Pot-Burial No. 12. A plain round jar with horizontal 'finger-groove' pattern. Only the lower half of the pot was intact. The 'finger-tip' and the 'finger-groove' patterns are a common feature of these plain pot-burials. (For the bones contained by the jar, see above, p. 90.)

Pot-Burial No. 13 (fig. 25, 2). A roughly-potted ellipsoid jar, now rimless, with a series of cord-marks round the body. The cords may have been functional to prevent the sagging of the large pot during the drying preliminary to baking. (For the bones contained by the jar, see above, p. 90.)

(c) INSCRIBED POTTERY

Stamped and inscribed pottery, rare at Mohenjo-daro, is fairly common at Harappā. The stamped inscriptions, peculiar to the common scored goblets (Mackay Type B; above, fig. 10, 46) were presumably potters' marks.¹ The usual practice, however, was to incise or scratch the inscriptions after (rarely before) the firing of the vessel. Most of the graffiti consist of vertical or oblique strokes on the inner side of the rim, but pictographic signs similar to those of the seals also occur.

A stamped goblet (pl. L A and fig. 10, 46), from a late layer, is the only example of a stamped vessel from the present excavation. Nine similar goblets with identical stamps were, however, recovered from the earlier excavations at Harappā (Vats, II, pl. CII, 23 and 24, and pl. CIII, 46). Of the four signs in the present impression, three are distinct and correspond to the sign-list (Vats, II, pl. CV–CXVI) Nos. 133 and 168; the fourth sign is blurred but may be restored from Vats, II, pl. CIII, 46.

The following inscribed sherds were found in HP XXX (pl. XLVIII):—

1. Rim-fragment with pictographs engraved before firing, representing conventional fish(?). From the make-up of the platform.

2. Fragment of the dish of an offering-stand with pictographs engraved before firing, some of them indistinct. Of the identifiable signs, one is similar to No. 238a of the sign-list. From the make-up of the 'rampart'.

3. Inscribed sherd engraved before firing, from the make-up of the 'rampart'.

4. Inscribed rim-fragment engraved before firing with four pictographs, two of which correspond to the sign-list Nos. 370 and 437; the other two do not appear in the sign-list. From the make-up of the platform.

5. Rim-fragment engraved before firing with three oblique strokes, corresponding to sign-list No. 6. From the make-up of the 'rampart'.

6. Rim-fragment with traces of inscription engraved after firing. From the make-up of the 'rampart'.

The following inscribed sherds were recovered from the débris-layers of the cemetery-area (pl. XLIX):—

1. Base-fragment engraved before firing with a sign, incomplete but comparable to No. 195 of the sign-list.

2. Rim-fragment engraved before firing with two vertical strokes, on the rim, No. 2 of the sign-list.

¹ At Mohenjo-daro too, the five fragments of jars bearing stamped marks belong only to this type (Marshall, I, 292, and III, pl. LXXVIII, 1, 3).



Graffiti on potsherds



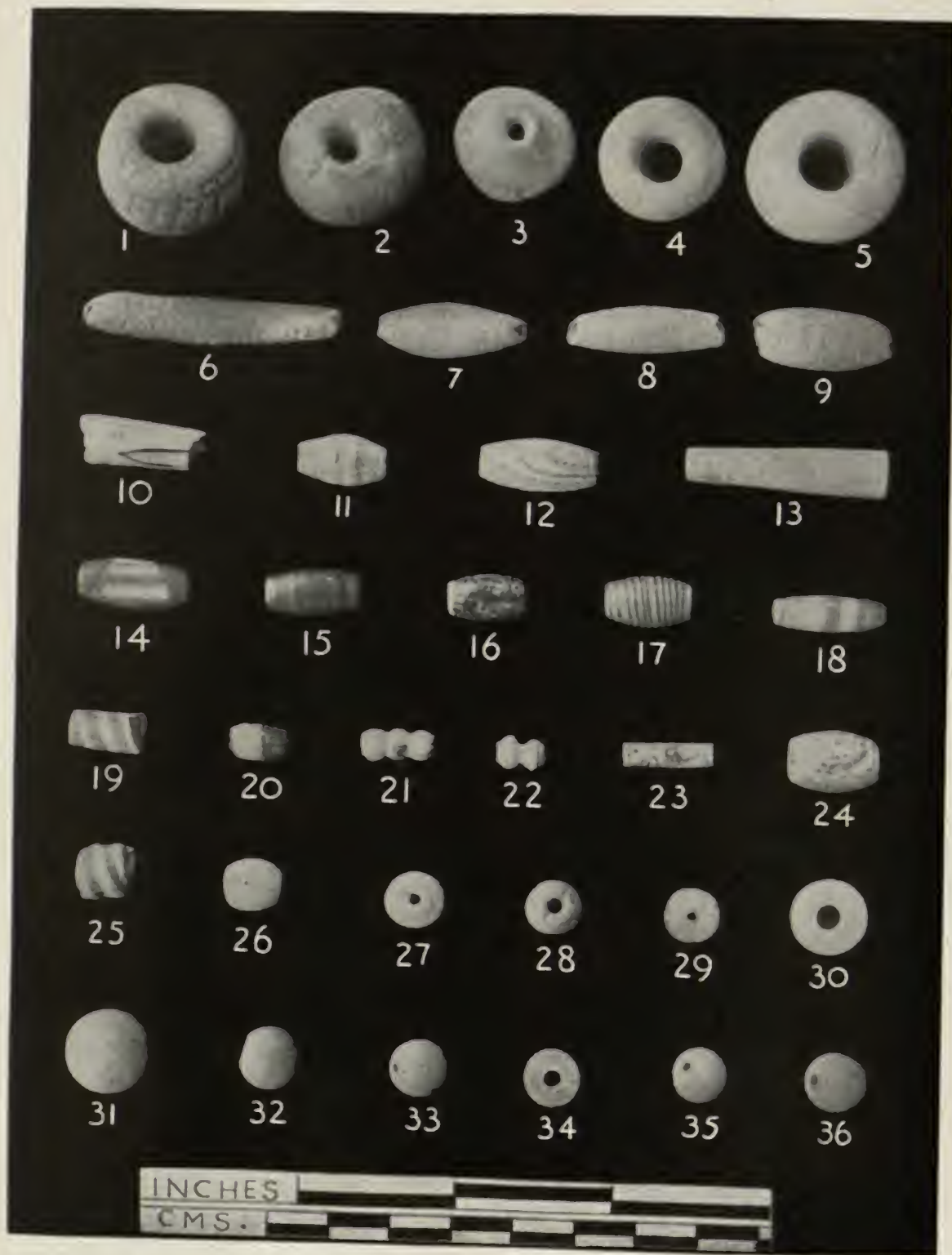
Graffiti on potsherds



A. Stamped 'Indus Valley goblet'



B. Miscellaneous terracotta objects



Beads

3. Rim-fragment engraved before firing with three vertical strokes on the rim, No. 6 of the sign-list, and with rough scratchings representing conventional fish(?) on the body.
4. Sherd engraved before firing with two complete pictographs. Of the signs, one is similar to No. 238c of the sign-list but the other is not elsewhere recorded.
5. Rim-fragment engraved before firing with four oblique strokes on the rim, No. 9 of the sign-list.
6. Rim-fragment engraved on the rim before firing with signs similar to Nos. 1, 6, 168 of the sign-list.
7. Rim-fragment with two pictographs engraved after firing through the red slip. One of the signs is similar to No. 331 of the sign-list and the other appears to be a variant of No. 73 in having a horizontal central stroke instead of a vertical one.

7. OTHER FINDS¹

(a) BEADS

The beads found in the previous excavations at Harappā were dealt with by H. Beck, who also discussed their foreign analogues.² The present excavation yielded two hundred and ten beads, eighty-three being from HP XXX, twenty-eight from the other sites excavated along the line of the defences, and the remaining ninety-nine from the cemetery-area. All the types and materials represented by them are included in the previous series. Most of the beads from HP XXX were from the accumulations against the outer face of the 'rampart' and were doubtless deposited there by the washings from the mound. A majority of the beads from the cemetery-excavation was derived from the débris deposited subsequently to Cemetery R 37 but prior to Cemetery H.

Steatite, which along with faience was the common bead-material in the Harappā culture, accounted for one hundred and eighteen beads. They were mostly thin circular discs (fig. 26, 4-5; cf. Vats, pl. CXXXIII, 1), the diameter ranging from one-fourth to three-fourths of an inch. Nineteen such beads were found in HP XXX, distributed as follows:

From the make-up of the 'rampart'	4
From a layer contemporary with Period I on the platform .. .	1
From a layer contemporary with Period V	4
From superficial débris	10

In the cemetery-area one such bead was found in each of the grave-pits for burials Nos. 1 and 2; further, a pre-grave layer yielded a group of fifteen beads, a post-grave but pre-débris layer eight stray beads, and the débris-layer forty-six.

Nine beads of a thicker variety of the same type (fig. 26, 6; cf. Vats, pl. CXXXIII, 1) were recovered; six were from HP XXX (four from layers of the 'rampart', and one each from Period IV and superficial débris), and one from the débris-layer of the cemetery-area.

Of the remaining steatite beads, one standard barrel circular bead was found in a superficial deposit of HP XXX and one in a post-grave but pre-débris deposit of the Cemetery R 37 area. Equivalent layers of the same sites respectively yielded one long cylindrical oblong and one long cylindrical circular bead. The débris-layer of the cemetery-area further yielded a spheroid bead.

The forty faience beads show a greater variety of shapes than do those of any other material. The colour is usually light green, but there are some beads of white or dull-white colour, in two cases with dark brown spiral lines on them (fig. 26, 13 and 14, and pl. LI, 19 and 25; cf. Vats, pl. CXXXIII, 8).

Two spherical faience beads were found in the pre-rampart deposits (layer 26) of HP XXX; except pottery, these constitute the only finds from these early layers. One more spherical bead was found in the make-up of the 'rampart', and four in post-rampart layers of HP XXX. One spheroid bead was found in a layer contemporary with Period VI on the platform of HP XXX. The débris-layer of the cemetery-area yielded one spherical and two spheroid beads. Three spherical and two spheroid beads also came from other rampart sites.

Three standard barrel circular beads of faience were found in the superficial layers of HP XXX. One of them was decorated with incised grooves at each end and oblique lines in between (fig. 26, 8 and pl. LI, 1). Of the three long barrel circular beads, one was from a layer contemporary with Period III of HP XXX and the other two from the débris-layer of the cemetery-area.

¹ These sections are mainly the work of Mr. A. Ghosh and Mr. Krishna Deva.

² Vats, I, 392ff.

Cylindrical circular beads of faience were represented by ten specimens, one of the standard type (from a superficial layer of HP XXX) and nine of the long type, three each being from the make-up of the 'rampart' and the post-rampart deposits of HP XXX and three more from the débris-layer of the cemetery-area. One unfinished cylindrical bead of uncertain cross-section was also found in the superficial levels of HP XXX.

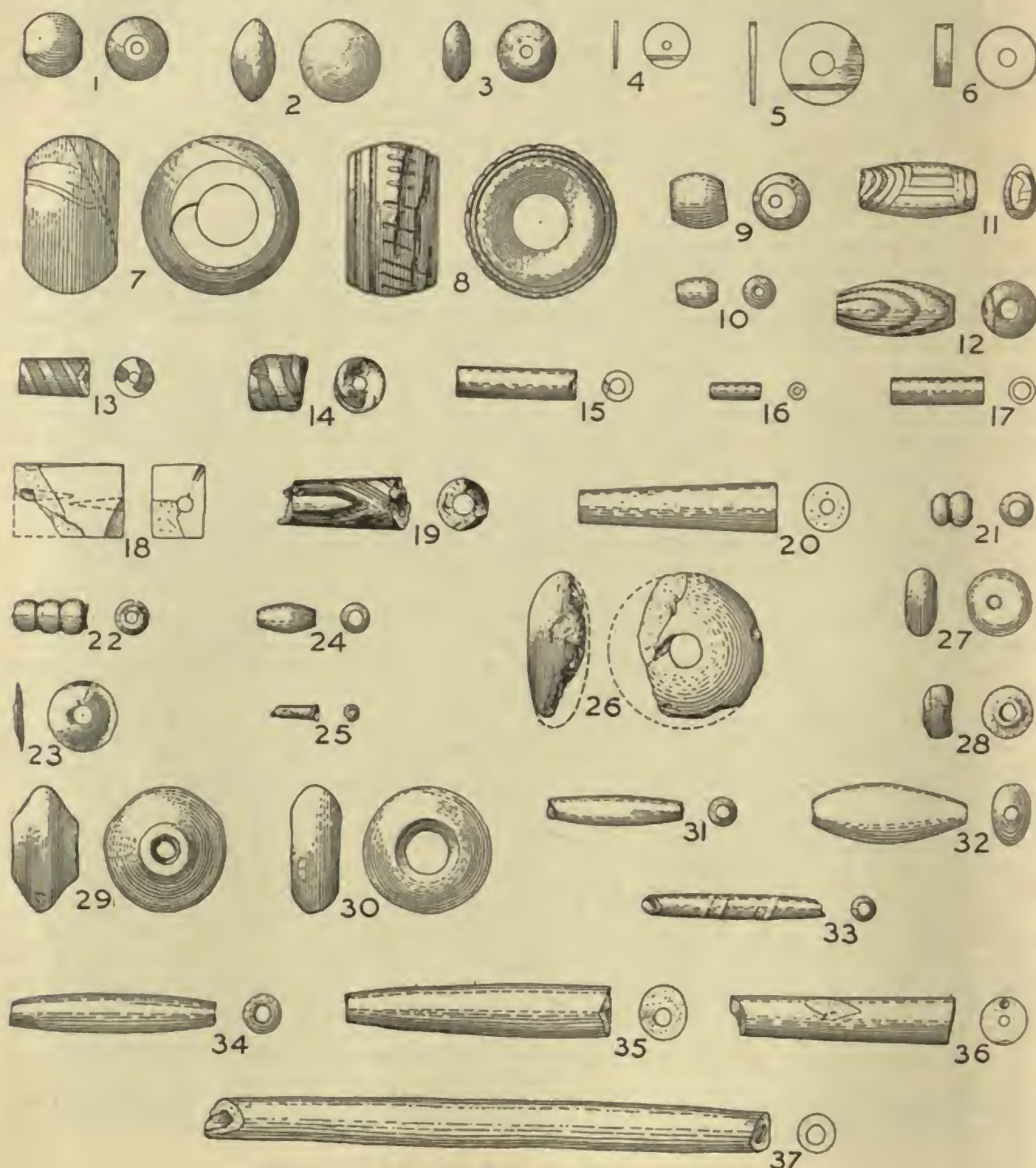


FIG. 26. Beads. $\frac{1}{1}$

Four segmented circular beads (fig. 26, 21 and 22 and pl. LI, 21 and 22; also Vats, pl. CXXXIII, 6) were found, two in HP XXX (Period V and post-rampart respectively) and one each in the débris-layer and a post-Cemetery H layer of the cemetery-area. The other shapes represented in faience, viz. long cone, double-convex and truncated bicone, all of circular cross-section, consist of one specimen each and are all from the superficial layers of HP XXX.

Of the seven beads of banded agate, six are of the long barrel circular type, including one from the make-up of the 'rampart', three from the superficial layers of HP XXX, and one from the débris-layer of the cemetery-area. One long cylindrical circular bead was found in a pre-grave deposit of the Cemetery R 37 area. A superficial deposit of HP XXX yielded a long barrel oblate bead of etched carnelian (fig. 26, 11 and pl. LI, 14).

Three beads of gold leaf were found in the débris-layer of the cemetery-area (fig. 26, 23-25 and pl. LII A, 1-3; cf. Vats, pl. CXXXIV, 7). They are all of circular cross-section and are double-convex, long barrel and long cylindrical respectively in shape.

Shell beads are represented by three specimens. One was from the make-up of the 'rampart' in HP XXX and is truncated barrel circular in shape (fig. 26, 7; pl. LI, 5). The other two are from the post-débris-layers of the cemetery-area and are of the long barrel circular and long cylindrical circular types.

Most of the terracotta beads are very long (cf. fig. 26, 35-37); none is complete, but the longest extant piece is $3\frac{1}{2}$ inches in length. Being hand-made, they are always roughly finished, nor do they bear any slip. Of these, HP XXX yielded two cylindrical circular specimens (both from the make-up of the 'rampart'), and thirteen of barrel form, distributed as follows:—

From the make-up of the 'rampart'	..	3
Period III on the platform	..	1
Period IV	..	1
Period V	..	1
From superficial layers	..	7

In the débris-layer of the cemetery-area were found five barrel beads and in other sites two, in addition to one barrel oblate and one cylindrical circular bead.

Long barrel terracotta beads, but not of the very long variety (cf. fig. 26, 31-34), were found in lesser numbers. Two barrel circular beads were found in superficial deposits and one in the make-up of the 'rampart' in HP XXX; in the latter deposit was also found a barrel oblate bead (fig. 26, 32).

Of the three oblate circular terracotta beads, one was found in the make-up of the 'rampart' in HP XXX (fig. 26, 26), and the remaining two in the débris-layer of the cemetery-area. One bead each of the truncated bicone circular type (fig. 26, 30) was recovered from Periods III and V on the platform of HP XXX. A spherical terracotta bead was found in a layer of Period V in the same cutting.

List of selected beads (fig. 26)

1. Faience: spheroid. Period VI. (HP XXX-65.) See also pl. LI, 32.
2. Faience: unbored double-convex circular. Post-rampart. (HP XXX, 249.)
3. Faience: truncated bicone circular. Post-rampart. (HP XXX, 131.) See also pl. LI, 27.
4. Steatite: disc cylinder circular. Post-rampart. (HP XXX, 64.)
5. Steatite: disc cylinder circular. Contemporary with 'rampart'. (HP XXX, 450.)
6. Steatite: disc cylinder circular. Unstratified. (HP XXX, 198.)
7. Shell: truncated standard barrel circular. Contemporary with 'rampart'. (HP XXX, 487.)
8. Faience: standard barrel circular with oblique incisions. Post-rampart. (HP XXX, 347.) See also pl. LI, 1.
9. Faience: standard barrel circular. Post-rampart. (HP XXX, 94.) See also pl. LI, 5.
10. Faience: long barrel circular. Period III. (HP XXX, 133.)
11. Carnelian, etched: long barrel oblate. Post-rampart. (HP XXX, 71.) See also pl. LI, 14.
12. Agate, banded: long barrel circular. Post-rampart. (HP XXX, 342.) See also pl. LI, 12.
13. Faience: long cylindrical circular. Contemporary with rampart. (HP XXX, 230.) See also pl. LI, 19.
14. Faience: standard roughly cylindrical circular. Post-rampart. (HP XXX, 1.) See also pl. LI, 25.
15. Faience: long cylindrical circular. Contemporary with 'rampart'. (HP XXX, 389.)
16. Faience: long cylindrical circular. Unstratified. (HP XXXII W.E., 22.)
17. Shell: long cylindrical circular. Unstratified. (HP XXXII, 9.) See also pl. LI, 23.

18. Steatite: long cylindrical oblong. Post-rampart. (HP XXX, 339.)
19. Agate: long cone circular. Unstratified. (HP XXIX, 124.) See also pl. LI, 10.
20. Faience: long cone circular. Post-rampart. (HP XXX, 297.) See also pl. LI, 13.
21. Faience: segmented circular. Post-rampart. (HP XXX, 60.)
22. Faience: segmented circular. Unstratified. (HP XXXII, 44.) See also pl. LI, 21.
23. Gold leaf: double convex circular. Unstratified. (HP XXXII W.E., 8.) See also pl. LII A, 1.
24. Gold leaf: long barrel circular. Unstratified. (HP XXXII W.E., 7.) See also pl. LII A, 3.
25. Gold leaf: long cylindrical circular. Unstratified. (HP XXXII, 53.) See also pl. LII A, 2.
26. Terracotta: oblate circular. Contemporary with 'rampart'. (HP XXX, 156.)
27. Terracotta: oblate circular. Unstratified. (HP XXXII, 15.)
28. Terracotta: roughly oblate circular. Unstratified. (HP XXXII, W.E., 17.)
29. Terracotta: truncated bicone circular. Period III. (HP XXX, 89.) See also pl. LI, 3.
30. Terracotta: truncated bicone circular. Period V. (HP XXX, 365.) See also pl. LI, 4.
31. Terracotta: long barrel circular. Post-rampart. (HP XXX, 332.)
32. Terracotta: long barrel oblate. Contemporary with 'rampart'. (HP XXX, 167.) See also pl. LI, 7.
33. Terracotta: long barrel circular. Post-rampart. (HP XXX, 335.)
34. Terracotta: long barrel circular. Unstratified. (HP XXVII, W.E., 13.)
35. Terracotta: long barrel circular. Post-rampart (HP XXX, 259.)
36. Terracotta: long cylindrical circular. Contemporary with 'rampart'. (HP XXX, 377.)
37. Terracotta: long cylindrical circular. Period III. (HP XXX, 417.)

(b) BANGLES AND RINGS

Personal ornaments of faience and steatite (pl. LIII A) consist of bracelets or bangles, together with two finger-rings. The bangles are either plain or ornamented with incised linear patterns and in one case (No. 16) with deep oblique lines. For analogues from previous excavations, see Vats, II, pl. CXXXVIII.

1-3. Fragments of bangles of green faience, respectively oval, oblate and circular in section. From HP XXX, near the surface.

4-7 and 9. Fragments of steatite bangles. Nos. 4, 6, 7 and 9 are oblong and No. 5 plano-convex in section. Unstratified.

8 and 10. Fragments of bangles of green faience, plano-convex and oblate respectively in section. Unstratified.

11. Fragment of a steatite ring, oblong in section. From HP XXX, near the surface.

12. Fragment of a polished green faience bangle, circular in section. From HP XXX, Period V on the platform.

13. Fragment of a green faience bangle, circular in section. From the débris-layer of the cemetery-area.

14. Fragment of a white faience finger-ring. From the débris-layer of the cemetery-area.

15. Fragment of a polished green faience bangle, oblate in section. From HP XXX, Period V on the platform.

16. Fragment of a greenish faience bangle with deep oblique or semi-spiral grooves on the outer face; one end contains two concentric grooves marking the position of the joint of the bangle. Unstratified.

17-18. Fragments of two white faience bangles, oblate and circular respectively in section. Unstratified.

19-20. Fragments of two white faience bangles, oblate and circular respectively in section. From HP XXX, Period VI on the platform.

Terracotta bangles and a ring are illustrated on pl. LIII B.

1-2. Bangles, circular and oval respectively in section. From HP XXX, make-up of the 'rampart'.

3. Fragment of a bangle with cog-wheel edge. Unstratified.

4. Bangle, rectangular in section. From HP XXX, make-up of the 'rampart'.

5. Finger-ring. Unstratified.

6. Bangle, circular in section; the rough joint of the two ends is visible. Unstratified.

7. Fragment of a bangle with a corrugated outer face. Unstratified.

8. Fragment of a polished bangle, triangular in section. From HP XXX, Period V on the platform.

9. Fragment of a bangle made of two pieces pressed together, both circular in section. Unstratified.

10. Fragment of a polished bangle, oval in section. Unstratified.

11. Fragment of a grey bangle, triangular in section. Unstratified.



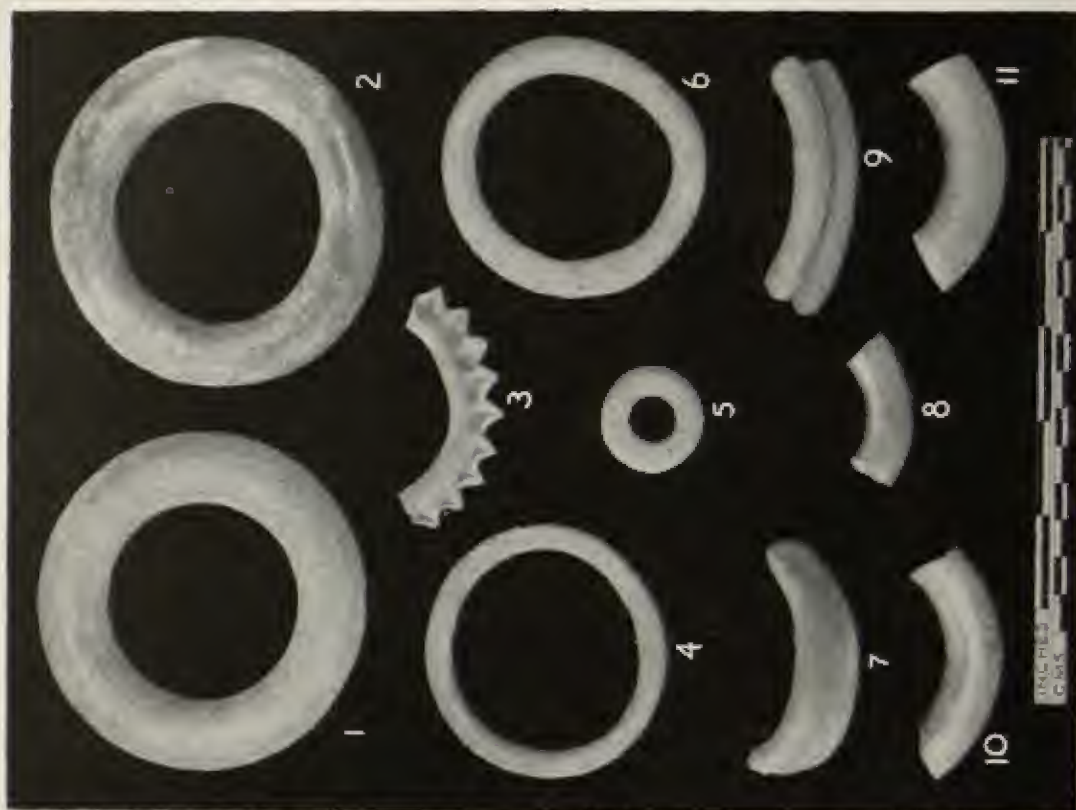
A. Gold beads. $\frac{1}{2}$



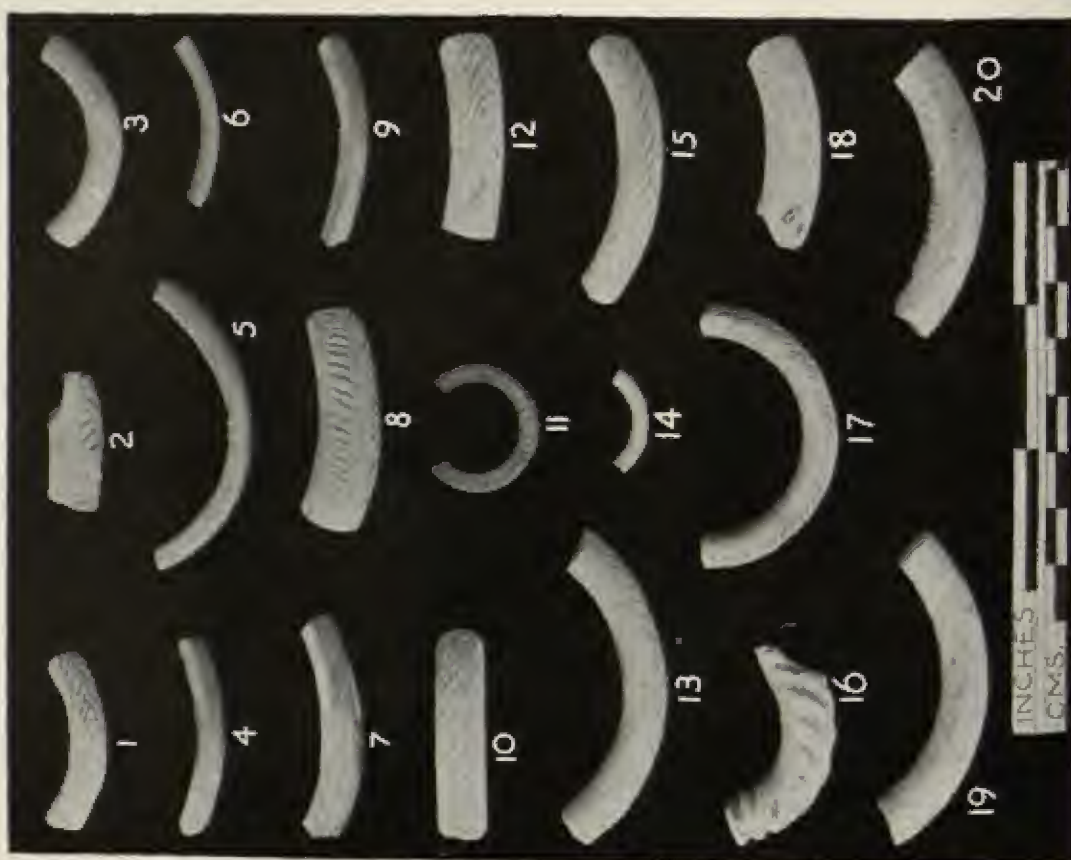
B. 1, terracotta seal-impression, front and back ; 2, steatite seal, with impression (left). $\frac{1}{2}$



C. 1, 2, mirrors (front and back) from burial 2



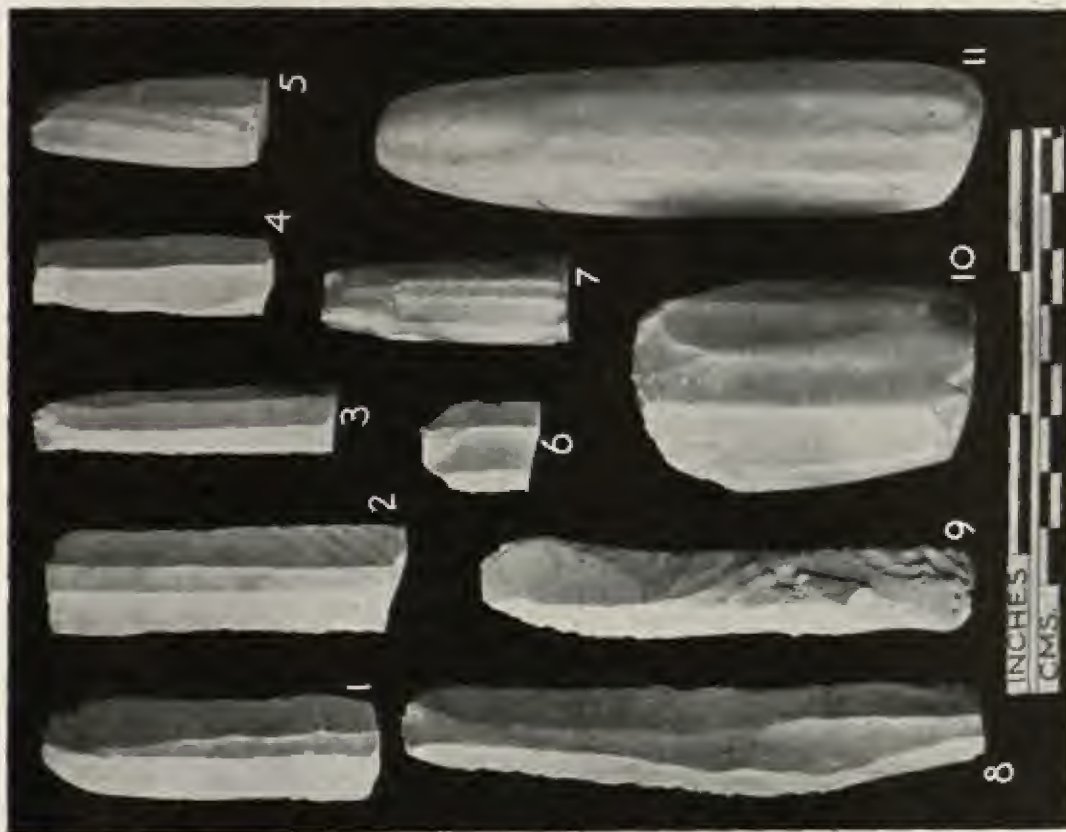
B. Terracotta bangles and ring



A. Bangles of faience and steatite



A. Shell objects



B. Chert blades and cores



*Saddle-quern, rubber, and other stone objects
(Scale of inches)*

The shell objects include fragments of bangles, a ring, and roughly-sawn or unfinished objects and rejects (pl. LIV A).

1. Fragment of a bangle, plano-convex in section. Unstratified.
2. Fragment of a bangle, pentangular in section. From HP XXX, near the surface.
3. Fragment of a ring, rectangular in section. From the cemetery-area, near the surface.
- 4-5. Fragments of bangles with a bevelled edge and an irregular section respectively. From HP XXX, make-up of the 'rampart'.
6. Fragment of a bangle, triangular in section. From HP XXX, Period V on the platform.
- 7 and 9. Fragments of bangles with irregular sections. Respectively from HP XXX, make-up of the 'rampart', and the cemetery-area, débris-layer.
8. Fragment of an unfinished bangle. From HP XXX, near the surface.

(c) OTHER SHELL OBJECTS (pl. LIV A)

10. Upper portion of a rejected shell. From HP XXX, make-up of the 'rampart'.
11. Fragment probably of the handle of a ladle. From HP XXX, Period IV on the platform.
12. Fragment of an uncertain object with grooves at two ends. From HP XXX, make-up of the platform.
13. Fragment of a bangle, roughly triangular in section. From HP XXX, near the surface.

(d) CHERT

Blades and cores of chert occur abundantly at Mohenjo-daro and Harappä. The blades are of a fairly uniform type, being thin and long, normally trapezoidal in section, and usually without retouch. In a few cases (e.g. No. 9, below) the edge has been slightly toughened by vertical retouch at a few points, and in two or three cases a saw-edge seems intentional, but in most examples the jagged edges are the result of usage and other wear upon the unworked blade. The edges show no gloss. These blades appear commonly to have been used as knives. The cores have in many instances been polished for use, but their function is less obvious. In one instance (No. 7) the flattened under-surface and the broad end sharpened by the removal of a single transverse flake suggests that the implement was used as a chisel.

Characteristic examples found in 1946 are illustrated on pl. LIV B:—

- 1-2. Blades. From HP XXX, make-up of the 'rampart'.
- 3-4. Blades. From HP XXX, make-up of the platform.
5. Core. From the débris-layer of the cemetery-area.
6. Fragmentary flake, found in association with burial No. 1 in Cemetery R 37 (above, p. 86).
7. Core, with flattened under-side and sharpened end; probably a chisel. From HP XXX, Period I on the platform.
8. Blade. From HP XXX, Period V on the platform.
9. Blade, with slight lateral retouches. From a post-grave but pre-débris layer of the cemetery-area.
10. Core. From HP XXX, Period III on the platform.
11. Core. From HP XXX, make-up of the platform.

(e) MIRROR

The only important copper¹ object found in 1946 was a circular handled mirror (pl. LII C), found in a

¹ The Chemist of the Archaeological Survey of India reports as follows:—

Chemical analysis of the borings from the mirror gave the following results:—

Copper	..	..	81.90
Lead	..	..	2.39
Tin	..	..	0.34
Silica	..	..	0.20
Sulphur	..	..	0.64
Zinc	..	..	Traces
Iron	..	..	Traces
Oxygen by difference	..	..	14.53
TOTAL	..	..	100.00

The analysis shows that the mirror is made of copper. Tin is present only to the extent of 0.34% and is evidently an impurity in the copper ore. Nickel and arsenic could not be detected. The metal has been much oxidized, about 15% of the sample being accounted for by oxygen.

pot (Type XL_a, above p. 87), associated with burial No. 2 of Cemetery R 37. An oval copper mirror was previously found at Harappā (Vats, II, pl. CXXIV, 29).

(f) SEALS

The present excavation yielded one seal and one seal-impression (pl. LII B):—

1. Oblong steatite seal with six pictograms corresponding to the sign-list Nos. 388, 69, 164, 238, 120 and 2. From an unstratified layer. A steatite seal bearing identical pictographs with a bull ('unicorn') was found in the previous excavations (Vats, II, pl. LXXVI, 17).

2. Oblong terracotta seal-impression showing five pictograms on the obverse and a crocodile and fish on the reverse. An identical seal was found in the previous excavations (Vats, II, pl. XCIV, 337). The five pictograms correspond to the sign-list Nos. 145, 238, 270, 89 and 412. From Cemetery R 37, débris-layer.

(g) STONE OBJECTS (OTHER THAN CHERT)

The objects illustrated on pl. LV are all of sandstone and are derived from HP XXX.

1. Saddle-quern. From the make-up of the 'rampart'. Cf. Marshall, III, pl. CXXX, 17.
2. Pestle. From a post-rampart layer.
3. Fragment of a pestle. From a post-rampart layer.
4. Ball. Unstratified. Cf. Vats, II, pl. CXVII.
5. Fragment of a conical pestle. Contemporary with Period V on the platform. Cf. Vats, I, 358.
6. Spheroid object, slightly flattened at the base and top, possible a weight (weight 5452 grains). Unstratified. Cf. Vats, II, pl. CXVIII, 30.

(h) TERRACOTTAS

(i) Human figurines

The present excavation yielded sixty-five terracotta human figurines, forty-eight from the cemetery-area, twelve from HP XXX, and the remaining five from other cuttings along the line of the defences. With the exception of a few specimens, e.g. pl. LVII, 16, which is a hitherto unpublished type, and Nos. 1, 8, 26 and 27 which are new variants of familiar types, all the figurines belong to the published types from Harappā and Mohenjo-daro. A majority consists of female figurines, invariably draped in a short loin-cloth and often with fan-shaped head-dress and side-appendages or panniers which generally bear a black stain both on the interior and on the exterior. The inference is that the panniers were utilized as lamps or for the burning of incense. The appliqué technique used for head-dress, jewellery, eyes, mouth and breasts on the vast majority of the Indus figurines has already been discussed in previous publications,¹ and will be referred to below only when there is a departure from the established practice.

Of the figurines from HP XXX, one (pl. LVIII, 21) is contemporary with the building of the defences; three (one of them illustrated on pl. LVII, 12) are from Period II on the platform; one, a much-worn specimen of the same type as No. 1, is from Period V; while the remaining seven are unstratified.

The figurines from the cemetery-area are derived exclusively from the débris deposited subsequently to Cemetery R 37 and prior to Cemetery H. Of forty-eight figurines from this source, twenty-one are illustrated; fourteen are female figurines wearing a fan-shaped head-dress with side-panniers (similar to pl. LVI, 1); two are identical with pl. LVII, 18; one each is analogous with Nos. 20 and 25; while the remainder are too fragmentary for identification.

The following figurines are illustrated (pls. LVI–LVIII):—

1. Bust of a female figurine wearing a fan-shaped head-dress with black-stained panniers to which cones are attached. It resembles a well-known type illustrated in Vats, II, pl. LXXVII, 37, but our example shows no rosettes on the head-dress nor any collar-ornament. From the cemetery-area, débris-layer.

2. Female figurine (lower portion missing) standing with wedge-shaped arms outstretched and wearing a large fan-shaped head-dress with panniers and cone-attachments (the latter are now missing), a fillet on the

¹ Marshall, I, 338–355; Mackay, I, 257–316; Vats, I, 292–309.

forehead, a tight collar-ornament with pendants, a necklace of three strips, and a loin-girdle of which only traces survive. The navel is indicated by a hole. This is a common type but for the fillet on the forehead, which is rarely represented on the Indus figurines (cf. Mackay, II, pl. LXXII, 4). From the cemetery-area, débris-layer.

3. Standing female figurine (lower portion missing) with bird-like face, somewhat similar to Vats, II, pl. LXXVII, 45. The figure wears a mutilated head-dress (probably of the usual fan-type with panniers), a tight collar-ornament of three strips with several pendants, a necklace of two strings with a disc-shaped pendant or clasp and a loin-girdle of which only traces survive. From the cemetery-area, débris-layer.

4. Female bust showing a crude facial type resembling Vats, II, pl. LXXVI, 30, a fan-shaped head-dress with pointed ends (similar to Mackay, II, pl. LXXV, 1), and a large disc-shaped object near each ear which may represent a ear-ornament. For a somewhat similar ear-ornament, cf. Marshall, III, pl. XCV, 28; Vats, II, pl. LXXVII, 51 and 53. From the cemetery-area, débris-layer.

5. Head of a human figurine wearing a fan-shaped head-dress adorned with a row of three rosettes (similar to Vats, II, pl. LXXVII, 36-40) and discoid ear-ornament, similar to that of the previous figure, but cruder and partly impinging upon the eyes. From the cemetery-area, débris-layer.

6. Bust of a female figurine, wearing a mutilated head-dress with side-panniers and showing a smiling face with a prominent aquiline nose and small chin, which is unusually well-modelled for an Indus-figurine. Unlike others, the mouth and chin of this figurine are represented by a single applied strip of clay. Eyes missing. From the cemetery-area, débris-layer.

7. Female figurine (arms and lower portion missing) with hair tied in a simple back-knot. It wears no jewellery save discoid ear-ornaments as on Nos. 4 and 5. The mouth of the figurine is indicated by a simple incision. From the cemetery-area, débris-layer.

8. Bust of a female figurine with bird-like head. It wears round the neck what looks like a scarf of two folds, projecting outward. From the cemetery-area, débris-layer.

9. Bust of a bearded male figurine, not unlike Mackay, II, pl. LXXII, 8, wearing a tight collar-ornament of two strings with several pendants and with hair brushed back. From a late layer along the line of the defences.

10. Female head, wearing a head-dress with voluted ends, a cone-ornament over the forehead, oblong ear-ornament slightly impinging on the eyes (as on No. 5), and a collar-ornament of two strings with pendants. It is of the same type as Vats, II, pl. LXXVII, 51-54. Unstratified.

11. Similar, but the cone-ornament mutilated, while a strand of hair hangs down to the left from the forehead, as in Marshall, III, pl. XCV, 13.

12. Head, bird-like but possibly human, with sockets for the eyes and mouth. From HP XXX, Period II.

13. Red-slipped female figurine (mutilated), with the right hand touching the loins and wearing a collar-ornament with pendants and a loin-cloth. From the cemetery-area, débris-layer.

14. Mutilated torso of a standing female figurine wearing a loin-cloth secured by a girdle of three strings which is adorned with three medallions. Navel represented by an incised pellet (cf. Mackay, II, pl. LXXV, 5). From a late layer.

15. Left half of a female torso, standing with the arm pendant and wearing a loin-cloth of which faint traces survive. Head and feet missing. From the cemetery-area, débris-layer.

16. A crude human bust with hands raised. The mouth is indicated by an inconspicuous incision. A new type. From the cemetery-area, débris-layer.

17. Rectangular foot-board with a pair of crude human feet, each showing only four toes. Similar to Vats, II, pl. LXXVI, 25. From the cemetery-area, débris-layer.

18. Human figurine squatting with arms round the knees. A common Harappan type, similar to Vats, pl. II, LXXVI, 3 and Marshall, III, pl. XCV, 19. No attempt to delineate the eyes or mouth. From the cemetery-area, débris-layer.

19. Similar, but with facial features portrayed. Forearms and forelegs broken off. From a late layer.

20. Crudely executed male torso. From the cemetery-area, débris-layer.

21. Bust of a female figurine wearing a head-dress with voluted ends (now mutilated) of the type shown on Nos. 10 and 11. This type occurs both at Mohenjo-daro (Marshall, I, pl. XII, 1) and Harappā (Vats, II, pl. LXXVII, 51-54). From HP XXX, earthen make-up of the 'rampart'.

22. Female head wearing a fan-shaped head-dress with panniers, below which are attached flat tapering strips of clay. This type is common both at Harappā and Mohenjo-daro. From the cemetery-area, débris-layer.

23. Crudely-executed female figurine (arms and feet mutilated) wearing a fan-shaped head-dress and a loin-cloth of which only faint traces survive. The mouth is represented by a single applied strip of clay and the navel

by a shallow hole. The eyes have not been portrayed. Being bereft of all jewellery, it is a new variant of a common female type with the fan-shaped head-dress. From the cemetery-area, débris-layer.

24. Bust of a female figurine wearing on the forehead what looks like a mutilated cone-ornament. The head-dress together with side-appendages is broken off. A similar cone-ornament occurs on Vats, II, pl. LXXVI, 23; pl. LXXVII, 31. From the cemetery-area, débris-layer.

25. Upper portion of a crude figure (probably male, as indicated by small breasts). The mouth is represented by a shallow scratched line; there is no indication of the eyes. From the cemetery-area, débris-layer.

26. Highly decorated female head. Besides the usual fan-shaped head-dress (now mutilated) with panniers, it has immediately above the head an ornament resembling a deep bowl with ribbed exterior, while a sunflower (only one surviving now) was originally affixed to the base of each pannier. The figurine also wears a tight collar-ornament with numerous pendants. This is a variant of the type illustrated in Vats, II, pl. LXXVII, 41-43. From the cemetery-area, débris-layer.

27. Human (probably female) head wearing a new type of head-dress consisting of a circular, slightly concave disc, somewhat resembling a snake's hood. From the cemetery-area, débris-layer.

28. Crude human bust, wearing a tight collar-ornament with four pendants. From the cemetery-area, débris-layer.

(ii) *Animal figurines*

The following are selected for illustration (pls. LIX-LX):—

1. Rhinoceros, with eyes represented by incised pellets, nostrils by holes, mouth by a gash, and ears (now mutilated) by strips of clay first applied and then incised. The heavy folds of the skin are indicated by two broad strips of clay, pricked with holes. Legs and tail mutilated. Similar to Marshall, III, pl. XCVII, 8. From the cemetery-area, débris-layer.

2. Roughly-modelled animal, possibly rhinoceros, mutilated. The skin is represented as on the previous figurine, with the addition of a longitudinal strip along the spine, giving the two heavy strips the appearance of a pack. Similar to Mackay, II, pl. LXXVII, 22. From the cemetery-area, débris-layer.

3. Model of a humped bull. The eyes are indicated by incised pellets of clay. Similar to Mackay, II, pl. LXXIX, 26. From the cemetery-area, débris-layer.

4. Model probably of a ram but with a pig-like muzzle. Eyes represented by incised pellets. Horns mutilated. From the cemetery-area, débris-layer.

5. Model of a ram. The eyes are indicated by discoid pellets, mouth by a gash, nostrils by holes, and the horns bear incised lines representing natural rings. From the cemetery-area, débris-layer.

6. Well-modelled ram. The eyes are represented by incised pellets, mouth by an incised line and the nostrils by holes. The ears and the horns with the incised rings are faithfully delineated. From the cemetery-area, débris-layer.

7. Crudely-modelled humped bull. From the cemetery-area, débris-layer.

8. Roughly-modelled buffalo. The eyes are indicated by incised pellets, mouth by a gash, and nostrils by holes. From the cemetery-area, débris-layer.

9. Crude model of an animal with a long neck which was bored before baking evidently to receive a detachable head. From the cemetery-area, débris-layer.

10. Model of a rhinoceros. Its wrinkled warty skin is represented by strips of clay with combings, eyes by discoid pellets and mouth by a gash. From HP XXX, Period V on the platform.

11. Rough model of a rhinoceros. The thick hide is aptly represented by applied strips of clay. Unstratified.

12. Model of a curious animal with a very definite beard. The eyes are represented by transversely incised pellets and the beard by incision. From the cemetery-area, débris-layer.

13. Rough model probably of an antelope. From the cemetery-area, débris-layer.

14. Crudely-modelled humped bull. From the cemetery-area, débris-layer.

15. Crudely-modelled animal with long ears, possibly representing a donkey. The eyes are represented by incised pellets, mouth by a deep gash and nostrils by holes. From the cemetery-area, débris-layer.

16. Globular figurine, possibly human, with fan-shaped head-dress. It is analogous with Mackay II, LXXIII, 2. Unstratified.

17. Bearded head of a well-modelled ram. Nostrils and eyes represented by holes, and mouth by a gash. From the cemetery-area, débris-layer.



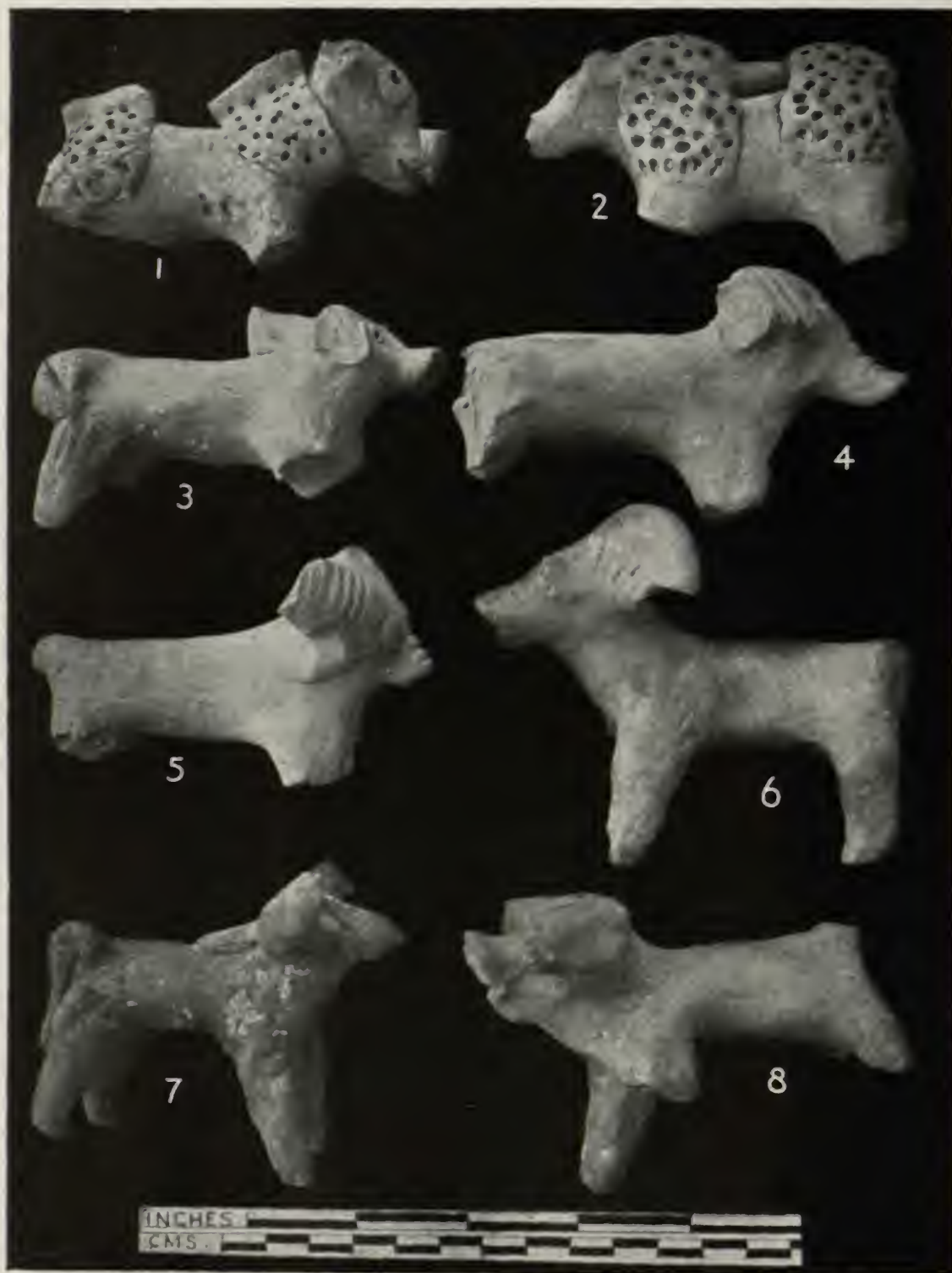
Terracotta figurines



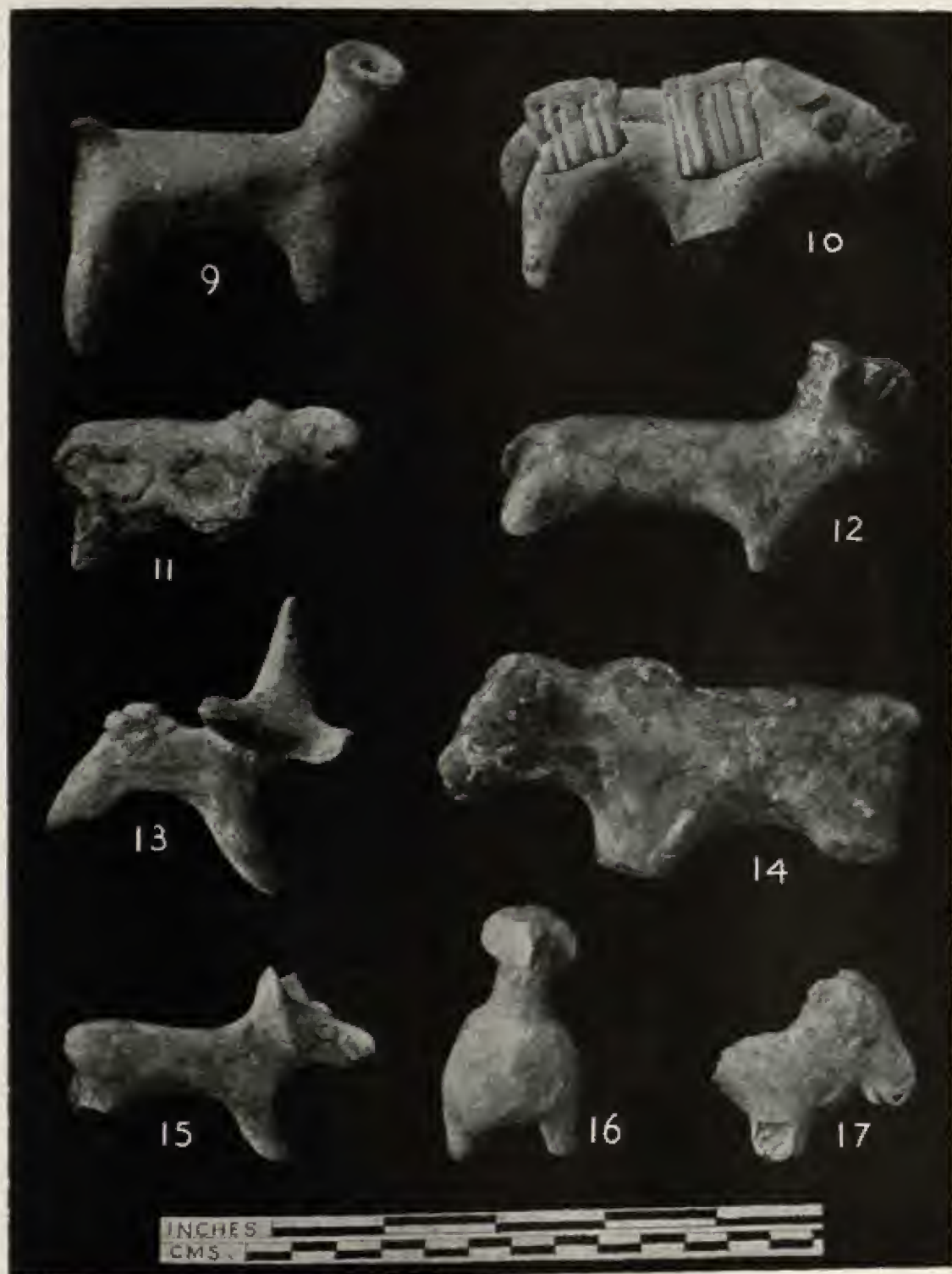
Terracotta figurines



Terracotta figurines



Terracotta figurines



Terracotta figurines



(iii) Other terracotta objects

The following miscellaneous terracotta objects are illustrated (pl. L B):—

1. Frame of a toy-cart with perforations for attachment. From the cemetery-area, débris-layer.
2. Similar but fragmentary. From HP XXX, make-up of the 'rampart'.
3. Mutilated wheel of a toy-cart, painted with black bands. From HP XXX, Period I on the platform.
4. Terracotta ring, possibly a net-sinker. From HP XXX, make-up of the 'rampart'.
5. Wheel of a toy-cart. From HP XXX, make-up of the 'rampart'.
6. Cone. From HP XXX, make-up of the 'rampart'.
7. Gamesman. From the cemetery-area, débris-layer.
8. Marble with vertically incised lines. Unstratified.
9. Gamesman. Unstratified.
10. Conical object with a rounded top, representing probably a phallus. It has a central shallow hole at the flat base. From the cemetery-area, débris-layer.
11. Large, thick ring probably representing a yoni (female principle). From HP XXX, Period IV on the platform.
12. Marble. From HP XXX, Period II on the platform.
13. Roughly spherical red-slipped rattle, perforated with three shallow holes. It is decorated all over with combed chevrons and painted with two brown bands. From HP XXX, pre-rampart layer.

APPENDIX B

Distribution of Harappā Pottery (fig. 1, p. 58)

Most of the pottery upon which this list is based is in the possession of the Archaeological Survey of India. It has recently been re-examined by Dr. Donald McCown, who has very kindly edited the following list. Sites marked with an asterisk have variant Harappan pottery. Doubtful sites are omitted.

1. Ahmadwālā, Bahāwalpur State. Unpublished.
2. Ali Murād—N. G. Majumdar, 'Explorations in Sind', *Mem. Arch. Sur. India*, No. 48 (Manager of Publications, Delhi, 1934), pp. 89-91.
3. Amri—N. G. Majumdar, *Mem. Arch. Sur. India*, No. 48, pp. 24-28.
4. Chabbuwālā, Bahāwalpur State. Unpublished.
5. Chak Pūrbāne Syāl—M. S. Vats, *Excavations at Harappā* (Manager of Publications, Delhi, 1940), I, 475-76.
6. Chanhu-daro—N. G. Majumdar, *Mem. Arch. Sur. India*, No. 48, pp. 35-38. E. J. H. Mackay, *Chanhu-daro Excavations* (Newhaven, Conn., 1943).
7. Charāiwālā, Bahāwalpur State. Unpublished.
8. Dābarkot—Aurel Stein, 'An Archaeological Tour in Waziristan and Northern Baluchistan', *Mem. Arch. Sur. India*, No. 37, pp. 55-64.
9. Daiwālā, Bahāwalpur State. Unpublished.
10. Damb Buthi—N. G. Majumdar, *Mem. Arch. Sur. India*, No. 48, pp. 114-120.
11. Derāwar, Bahāwalpur State. Unpublished.
12. Dhal—N. G. Majumdar, *Mem. Arch. Sur. India*, No. 48, pp. 125-27.
13. Diji-Ji-Tākvi—M. S. Vats in *Arch. Sur. India An. Report*, 1935-6, pp. 36-7.
14. Garakwālī II, Bahāwalpur State. Unpublished.
15. Ghāzi Shāh—N. G. Majumdar, *Mem. Arch. Sur. India*, No. 48, pp. 79-86.
16. Gorandī (b)—N. G. Majumdar, *Mem. Arch. Sur. India*, No. 48, p. 88.
17. Harappā—M. S. Vats, *Excavations at Harappā*, 2 vols. (Manager of Publications, Delhi, 1940.)
18. Jalhar, Bahāwalpur State. Unpublished.
19. Karchat—N. G. Majumdar, *Mem. Arch. Sur. India*, No. 48, pp. 129-131.
20. Khānpurī Thār, Bahāwalpur State. Unpublished.
21. Kotāsūr—M. S. Vats in *Arch. Sur. India An. Report*, 1935-6, pp. 37-8.
22. Kotlā Nihang Khān (Rupar)—M. S. Vats, *Excavations at Harappā*, I, 476-77.
23. Kudwālā, Bahāwalpur State. Unpublished.
24. Lohri—N. G. Majumdar, *Mem. Arch. Sur. India*, No. 48, pp. 65-67, and 73-76.
25. Lohumjo-daro—N. G. Majumdar, *Mem. Arch. Sur. India*, No. 48, pp. 48-58.

- *26. Mehī—Aurel Stein, 'An Archaeological Tour in Gedrosia', *Mem. Arch. Sur. India*, No. 43, pp. 154-163.
- 27. Mitha Dehen, Sind. Unpublished.
- 28. Mohenjo-daro—J. Marshall, *Mohenjo-daro and the Indus Valley Civilization*, 3 vols. (Arthur Probsthain, London, 1931); E. J. H. Mackay, *Further Excavations at Mohenjo-daro*, 2 vols. (Manager of Publications, Delhi, 1938).
- *29. Nokjo-Shāhdīnzai—Aurel Stein, *Mem. Arch. Sur. India*, No. 43, pp. 152-3.
- 30. Pāṇḍi-Wāhi—N. G. Majumdar, *Mem. Arch. Sur. India*, No. 48, pp. 91-95 and 109-114.
- 31. Rangpur—M. S. Vats in *Annual Report Arch. Survey of India*, 1934-5, pp. 34-38, pls. XII-XV.
- 32. Sandhanāwālā—Aurel Stein in *Geogl. Journal*, XCIX, No. 4 (London, 1942).
- 33. Shāhjo Kotiro—N. G. Majumdar, *Mem. Arch. Sur. India*, No. 48, pp. 137-39.
- 34. Shikhri, Bahāwalpur State. Unpublished.
- 35. Sutkāgen-dor—Aurel Stein, *Mem. Arch. Sur. India*, No. 43, pp. 60ff. The name is properly spelt as here written, and not 'Suktagen-dor' as originally published. Correction in Aurel Stein, *Archaeological Reconnaissances in North-Western India and South-Eastern Iran*, (London, 1937), pp. 70-1.
- 36. Thāno Buli Khān—N. G. Majumdar, *Mem. Arch. Sur. India*, No. 48, p. 142.
- 37. Trekoā Thār, Bahāwalpur State. Unpublished.